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EDITORIAL

BY the death of Dr. Rivers, which occurred while our last issue was passing through the press, Psychology has been deprived of its most gifted exponent in this country. Dr. Rivers was to have delivered the Presidential Address to the Psychology Section of the British Association this year, and elsewhere in this number will be found the tribute of the Association, through Dr. C. S. Myers, to his memory. *Psyche*, too, has lost a valued supporter; and we had hoped for many contributions from his pen, when the labours entailed by the completion of his great work on the Psychology of Dreams should have allowed him more leisure. The admirable article on the "Instinct of Acquisition," which appeared in the second number of our second volume, will be fresh in the memory of most of our readers, and it has recently been reprinted in the new edition of his *Instinct and the Unconscious*.

It is satisfactory to learn that much of Dr. Rivers' unpublished work was in a form which has enabled his Editor, Professor Elliot-Smith, to prepare it for immediate publication; and, in addition to *Conflict and Dream*, three further volumes will shortly be issued in the "International Library of Psychology," entitled respectively—*Psychology and Politics* (with a photogravure frontispiece from one of the few existing photographs of Rivers), *Psychology and Ethnology*, and *The Principles of Social Organization*. One of the most important of the Essays thus collected will be found at page 118, and we have also been fortunate enough to secure from Professor Elliot-Smith an account of the bearing of the ethnological theories there advocated on the Psychology of Myths as treated in the well-known works of Freud and Jung.

THE INFLUENCE OF THE LATE W. H. R. RIVERS.[1]

By Charles S. Myers, C.B.E., M.D., Sc.D., F.R.S.

WILLIAM HALSE RIVERS RIVERS was born on March 12, 1864, at Luton, near Chatham, the eldest son of the Rev. H. F. Rivers, M.A., formerly of Trinity College, Cambridge, and afterwards vicar of St. Faith's, Maidstone, and of Elizabeth, his wife, *née* Hunt. Many of his father's family had been officers in the Navy—a fact responsible, doubtless, for Rivers's love of sea voyages. The father of his paternal grandfather, Lieut. W. T. Rivers, R.N., was that brave Lieut. William Rivers, R.N., who, as a midshipman in the Victory at Trafalgar, was severely wounded in the mouth and had his left leg shot away at the very beginning of the action, in defence of Nelson or in trying to avenge the latter's mortal wound. So at least runs the family tradition; also according to which Nelson's last words to his surgeon were: "Take care of young Rivers." A maternal uncle of Rivers was Dr. James Hunt, who in 1863 founded and was the first President of the Anthropological Society, a precursor of the Royal Anthropological Institute, and from 1863 to 1866, at the meetings of the British Association, strove to obtain that recognition for anthropology as a distinct Sub-section or Section which was successfully won for Psychology by his nephew, who presided over the Psychological Section of the Association at the Bournemouth meeting in 1919, when the Psychologists were merely a Sub-section of Physiology.

Our "young Rivers" gave his first lecture at the age of twelve, at a debating society of his father's pupils. Its subject was "Monkeys." He was educated first at a preparatory school at Brighton, and from 1877 to 1880 at Tonbridge School. Thence he had hoped to proceed to Cambridge; but a severe attack of enteric fever compelled him to take a year's rest, and thus prevented him from competing for an entrance scholarship at that University. He matriculated instead in the University of London, and entered St. Bartholomew's Hospital in 1882, sharing the intention of one of his father's pupils of becoming

[1] The Presidential Address to the Psychology Section of the British Association, 1922.

an Army doctor. This idea, however, he soon relinquished; but, like his desire to go to Cambridge, it was to be realised later in life.[1]

When he took his degree of Bachelor of Medicine in 1886 he was accounted the youngest Bachelor ever known at his hospital. Two years later he graduated as Doctor of Medicine, and he spent these two and the two following years in resident appointments at Chichester (1888) and at St. Bartholomew's (1889) Hospitals, in a brief period of private medical practice (1890), and in travelling as ship's surgeon to America and Japan (1887), the first of numerous subsequent voyages. In 1891 he became house-physician at the National Hospital, Queen Square, where he first made the acquaintance of Dr. Henry Head, whose collaborator he was to be some twenty years later in one of the most striking neurological experiments ever made.

But before he began work at Queen Square, before he assisted Horsley there in his then wonderful operations on the brain, before he met Head fresh from his studies in Germany and enthusiastic over the colour-vision work and novel physiological conceptions of Hering, Rivers had already shown his interest in the study of the mind and the nervous system. Thus, in 1888, when he was twenty-four years of age, we find in the *St. Bartholomew's Hospital Reports* (vol. xxiv., pp. 249-251) his first published paper on "A Case of Spasm of the Muscles of Neck Causing Protrusion of the Head," and in the following year, in the same *Reports* (vol. xxv., pp. 279-280), an abstract of a paper read by him before the Abernethian Society, entitled "Delirium and its Allied Conditions." At this early date he pointed out the analogies between delirium and mania, protested against the use of narcotics in delirium, and condemned the wide separation—too wide even to-day—between diseases of the mind and diseases of the body. In 1891 and in 1893 he read papers to the Abernethian Society, abstracts of which appear in the *St. Bartholomew's Hospital Reports* (vol. xxvii., pp. 285-286, vol. xxix., p. 350), on "Hysteria" and on "Neurasthenia," to which his interests were to return so fruitfully during and after the Great War.

In 1892 he spent the spring and early summer at Jena, attending the lectures of Eucken, Ziehen, Binswanger, and others. In a diary kept by him during this visit to Germany the following sentence occurs:—"I have during the last few weeks come to the conclusion that I should go in for insanity when I return to

[1] For many of the above details of Rivers's early life and antecedents I am indebted to his sister, Miss K. E. Rivers.

England and work as much as possible at psychology." Accordingly, in the same year he became Clinical Assistant at the Bethlem Royal Hospital, and in 1893 he assisted G. H. Savage in his lectures on mental diseases at Guy's Hospital, laying special stress on their psychological aspect. About the same time, at the request of Professor Sully, he began to lecture on experimental psychology at University College, London.

Meanwhile, at Cambridge, Michael Foster was seeking someone who would give instruction there in the physiology of the sense organs, McKendrick having, as Examiner in Physiology, recently complained of the inadequate training of the Cambridge students in this branch of the subject. Foster's choice fell on Rivers, and in 1893 he invited him to the University for this purpose. For a few months Rivers taught simultaneously at Cambridge and at Guy's Hospital and at University College, London. He went to Germany for a short period of study under Professor Kräpelin, then of Heidelberg, whose brilliant analysis of the work curve and careful investigations into the effects of drugs on bodily and mental work had aroused his intense interest. In collaboration with Kräpelin, he carried out a brief investigation into mental fatigue and recovery, published in 1896 (*Journal of Mental Science*, vol. xlii., pp. 525-529, and Kräpelin's *Psychologische Arbeiten*, vol. i., pp. 627-678), which indicated that even an hour's rest is inadequate to neutralise the fatigue of half an hour's mental work, and paved the way for Rivers's important researches some ten years later upon the effects of drugs on muscular and mental fatigue.

At Cambridge Rivers set himself to plan one of the earliest systematic practical courses in experimental psychology in the world, certainly the first in this country. In 1897 he was officially recognised by the University, being elected to the newly-established Lectureship in Physiological and Experimental Psychology. But the welcome and encouragement he received from cognate branches of study at Cambridge could hardly be called embarrassing. Even to-day practical work is not deemed essential for Cambridge honours candidates in elementary psychology; psychology is not admitted among the subjects of the Natural Sciences Tripos; and no provision is made for teaching the subject at Cambridge to medical students. Rivers first turned his attention principally to the study of colour vision and visual space perception. Between 1893 and 1901 he published experimental papers "On Binocular Colour-mixture" (*Proc. Cambs. Philosoph. Soc.*, vol. viii., pp. 273-277), on "The Photometry of Coloured Papers" (*J. of Physiol.*, vol. xxii., pp. 137-145), and "On Erythropsia" (*Trans. Ophthal. Soc., London*,

vol. xxi., pp. 296-305), and until 1898 he was immersed in the task of mastering the entire literature of past experimental work on vision, the outcome of which was published in 1900 as an article in the second volume of the important *Text-book of Physiology*, edited by Sir Edward Sharpey Schafer.

This exhaustive article of 123 pages on "Vision" by Rivers is still regarded as the most accurate and careful account of the whole subject in the English language. It is of special value, not only as an encyclopædic storehouse of references to the work of previous investigators—although with characteristic modesty Rivers omits to mention himself among them—but also for the unsurpassed critical account of the principal theories of colour vision. In it he displayed the strength and the weakness of Hering's theory and the untenability of Helmholtz's explanations of successive contrast as due to fatigue, and of simultaneous contrast as due to psychological factors. Rivers clearly showed that the effect of psychological factors is not to create but to mask the phenomena of simultaneous contrast, which are really dependent on what he terms "the physiological reciprocity of adjoining retinal areas." His enthusiasm for Hering's theories led him to give by far the most detailed presentation of them that had then or has since appeared in our language. In classifying the phenomena of red-green colour-blindness, on which Helmholtz largely based his trichromic theory, Rivers proposed the useful terms "scoterythrous" and "photerythrous" in place of the terms "protanopic" and "deuteranopic," so as to avoid, in describing these phenomena, the use of names which implied the acceptance of a particular theory of colour vision. These terms have failed, however, to obtain general adoption.

In 1896 Rivers published an important paper "On the Apparent Size of Objects" (*Mind*, N.S., vol. v., pp. 71-80), in which he described his investigations into the effects of atropin and eserin on the size of seen objects. He distinguished two kinds of micropsia which had hitherto been confused—micropsia at the fixation-point due to irradiation, and micropsia beyond the fixation-point, which is of special psychological importance. Rivers came to the interesting conclusion that the mere effort to carry out a movement of accommodation may produce the same micropsia as when that effort is actually followed by movement. In other words, an illusion of size may be dependent solely on central factors. His later work, in conjunction with Professor Dawes Hicks, on "The Illusion of Compared Horizontal and Vertical Lines," which was published in 1908 (*Brit. J. of Psychol.*, vol. ii., pp. 241-260), led him to trace this illusion to origins still less motor in nature. Here horizontal and vertical

lines were compared under tachistoscopic and under prolonged exposure. The momentary view of the lines in the tachistoscope precluded any movement or effort of movement of the eyes, which had been supposed by many to be responsible for the over-estimation of vertical lines owing to the greater difficulty of eye movement in the vertical as compared with the horizontal direction. The amount of the illusion was found to be approximately the same for tachistoscopic as for prolonged exposure of the lines, but in the tachistoscopic exposure the judgment was more definite and less hesitating—in other words, more naïve, more purely sensory, more "physiological"—than in prolonged exposure. This result, which led to further work by Dr. E. O. Lewis at Cambridge under Rivers upon the Müller-Lyer illusion and upon the comparison of "filled" and "empty" space, is of fundamental physiological importance. Although it is not inconsistent with the view that visual space perception depends *for its genesis* on eye movement, it compels us to admit that visual space perception, *once acquired*, can occur in the absence of eye movement; or, in more general language, that changes in consciousness, originally arising in connection with muscular activity, may later occur in the absence of that activity. The provision of experimental evidence in favour of so fundamental and wide-reaching a view is obviously of the greatest importance.

In 1898, in which year he was given the degree of Hon. M.A. at Cambridge, Rivers took a fresh path in his varied career by accepting Dr. A. C. Haddon's invitation to join the Cambridge Anthropological Expedition to the Torres Straits. This was the first expedition in which systematic work was carried out in the ethnological application of the methods and apparatus of experimental psychology. His former pupils, Prof. W. McDougall and I, assisted Rivers in this new field. Rivers interested himself especially in investigating the vision of the natives—their visual acuity, their colour vision, their colour nomenclature, and their susceptibility to certain visual geometric illusions. He continued to carry out psychological work of the same comparative ethnological character after his return from the Torres Straits in Scotland (where he and I sought comparative data), during a visit to Egypt in the winter of 1900, and from 1901-2 in his expedition to the Todas of Southern India.

The Torres Straits expedition marked a turning-point in Rivers's life interests, as they were for the first time directed towards ethnological studies, to which he became ardently devoted ever after, until his death removed one who at the time was President of the Royal Anthropological Institute, had in 1920-1 been President of the Folk Lore Society, and had in 1911

been President of the Section of Anthropology of the British Association. His ethnological and sociological work during his expedition to the Todas and during his two subsequent expeditions to Melanesia is too well known to need mention here. It was Rivers's own view that his most important contributions to science are to be found in the two volumes of his "History of Melanesian Society," published in 1914.

His psychological investigations among the Torres Straits islanders, Egyptians, and Todas (*Reports of the Cambridge Anthrop. Exped. to Torres Straits*, vol. ii., Pt. I., pp. 1-132; *J. of Anthrop. Inst.*, vol. xxxi., pp. 229-247; *Brit. J. of Psychol.*, vol. i., pp. 321-396) will ever stand as models of precise, methodical observations in the field of ethnological psychology. Nowhere does he disclose more clearly the admirably scientific bent of his mind—his insistence of scientific procedure, his delight in scientific analysis, and his facility in adapting scientific methods to novel experimental conditions. He reached the conclusion that no substantial difference exists between the visual acuity of civilised and uncivilised peoples, and that the latter show a very definite diminution in sensibility to blue, which, as he suggested, is perhaps attributable to the higher macular pigmentation among coloured peoples. He observed a generally defective nomenclature for blue, green, and brown among primitive peoples, both white and coloured, and large differences in the frequency of colour-blindness among the different uncivilised peoples whom he examined. In his work on visual illusions he found that the vertical-horizontal-line illusion was more marked, while the Müller-Lyer illusion was less marked, among uncivilised than among civilised communities; and he concluded that the former illusion was therefore dependent rather on physiological, the latter rather on psychological factors, the former being counteracted, the latter being favoured, by previous experience—*e.g.*, of drawing lines or of apprehending complex figures as wholes.

In 1903, the year after his return from India, and the year of his election to a Fellowship at St. John's College, Rivers began an investigation, continued for five years, with Dr. Henry Head, in which the latter, certain sensory nerves of whose arm had been experimentally divided, acted as subject, and Rivers acted as experimenter, applying various stimuli to the arm and recording the phenomena of returning cutaneous sensibility. The results of this heroic and lengthy investigation are well known. The discovery of a crude punctate protopathic sensibility, distinct from a more refined epicritic sensibility, so deeply impressed Rivers that a decade later his psychological views may be said to

have been centred round this distinction between the ungraded, "all-or-nothing," diffusely localising functions of the protopathic system, and the delicately graded, discriminative, accurately localising functions of the epicritic system. The exact interpretation of this "Human Experiment in Nerve Division," published at length in 1908 (*Brain*, vol. xxxi., pp. 323-450), has been disputed by subsequent workers, whose divergent results, however, are at least partly due to their employment of different methods of procedure. Head's experiment has never been identically repeated, and until this has been done we are probably safe in trusting to the results reached by the imaginative genius and the cautious critical insight of this rare combination of investigators. At a far higher nervous level broad analogies to this peripheral analysis of cutaneous sensibility were later found by Head when thalamic came to be compared with cortical activity and sensibility.

While working with Head upon his arm, Rivers's indomitable activity led him to simultaneous occupation in other fields. In 1904 he assisted Professor James Ward to found and to edit the *British Journal of Psychology*, and in that year he also received an invitation to deliver the Croonian Lectures in 1906 at the Royal College of Physicians, of which in 1899 he had been elected a Fellow. The study of drug effects had long interested him. In a paper on "Experimental Psychology in Relation to Insanity," read before the Medico-Psychological Society in 1895 (*Lancet*, vol. lxxiii., p. 867), he had drawn the attention of psychiatrists to the comparability of drug effects with the early stages of mental disorders before they were seen by the physician. And so, reverting to the work he had done under Kräpelin many years previously, he chose as his subject for the Croonian Lectures "The Influence of Alcohol and other Drugs on Fatigue" (Arnold, 1908). But although he utilised Kräpelin's ergograph and many of Kräpelin's methods, Rivers's *flair* for discovering previous "faulty methods of investigation" and his devotion to scientific methods and accuracy could not fail to advance the subject. Of no one may it be more truly said than of him—*nihil tetigit quod non ornavit*. He felt instinctively that many of the supposed effects of alcohol were really due to the suggestion, interest, excitement, or sensory stimulation accompanying the taking of the drug. Accordingly he disguised the drug, and prepared a control mixture which was indistinguishable from it. On certain days the drug mixture was taken, on other days the control mixture was taken, the subject never knowing which he was drinking. Rivers engaged Mr. H. N. Webber as a subject who could devote himself to the investigation

so completely as to lead the necessarily uniform life while it was being carried out. He found that the sudden cessation of all tea and coffee necessary for the study of the effects of caffeine induced a loss of energy, and that other mental disturbance might occur through giving up all forms of alcoholic drink. Therefore most of his experiments were carried out more than twelve months after the taking of these drinks had been discontinued. Instead of recording a single ergogram, Rivers took several sets of ergograms each day, each set consisting usually of six ergograms taken at intervals of two minutes, and separated from the next set by an interval of thirty or sixty minutes. He arranged that the drug mixture or the control mixture should be taken after obtaining the first set of ergograms, which served as a standard wherewith subsequent sets on the same day might be compared. He worked with Mr. Webber on alcohol and caffeine, and his research was followed by the similar work of Dr. P. C. V. Jones in 1908 on strychnine, and of Dr. J. G. Slade in 1909 on Liebig extract.

With these vast improvements in method, Rivers failed to confirm the conclusions of nearly all earlier investigators on the effects of from 5 to 20 c.c. of absolute alcohol on muscular work. His results with these doses, alike for muscular and mental work, were mainly negative, and indeed with larger doses (40 c.c.) were variable and inconclusive; although an equivalent quantity of whisky gave an immediate increase of muscular work—a result which strongly suggests the influence of sensory stimulation rather than the direct effect of the drug on the central nervous system or on the muscular tissues. Rivers concluded that alcohol may in some conditions favourably act on muscular work by increasing pleasurable emotion and by dulling sensations of fatigue, but that probably its most important effect is to depress higher control, thus tending to increase muscular and to diminish mental efficiency. Working with caffeine, Rivers also obtained effects much less pronounced than those recorded by several earlier observers. He adduced evidence to indicate that (like alcohol) caffeine has a double action on muscular activity, the one immediately increasing the *height* of the contractions obtained and persisting, the other producing an initial slow, transitory increase in the *number* of the contractions, and then a fall. Following Kräpelin, he suggested that the former action represents a peripheral, the latter a central effect.

He also put forward novel suggestions as to the true course of the fatigue curve, and laid stress on the importance of carrying out ergographic work by peripheral electrical stimulation. These views are certain to bear fruit in the future. Indeed, it may be

safely said that no one can henceforth afford to investigate the effect of drugs on the intact organism without first mastering Rivers's work on the subject.

From the concluding passages of these Croonian Lectures the following sentences may be aptly cited:—"The branch of psychology in which I am chiefly interested is that to which the name of individual psychology is usually given. It is that branch of psychology which deals with the differences in the mental constitutions of different peoples, and by an extension of the term to the differences which characterise the members of different races. . . . These experiments leave little doubt that variations in the actions of drugs on different persons may have their basis in deep-seated physiological variations, and I believe that the study of these variations of susceptibility may do more than perhaps any other line of work to enable us to understand the nature of temperament and the relation between the mental and physical characters which form its two aspects."

Rivers's interests did not lie in the collection of masses of heterogeneous data, in obtaining blurred averages from vast numbers of individuals, in concocting mathematical devices, or in applying mathematical formulæ to the numerical data thus accumulated; they lay throughout his varied career in studying and analysing individual mental differences, in getting to know the individual in his relation to his environment. In ordinary circumstances, as he later said, "There is too little scope for the variations of conditions which is the essence of experiment. . . . While the experimental method as applied to the normal adult has borne little fruit, it would be difficult to rate too highly the importance of experiment in discovering and testing methods to be used in other lines of psychological inquiry where a wider variation of conditions is present" (*Brit. J. of Psychol*, vol. x., p. 185).

It was the importance of studying the play of the most variable conditions that led Rivers to investigate, as we have seen, first racial mental differences, then the differences produced in a given individual by nerve section, and finally those produced in different individuals by different drugs. Throughout his life he was steadfast to the biological standpoint, correlating the psychological with the physiological, and hoping to discover different mental levels corresponding to different neural levels.

And so we approach the last phase of Rivers's psychological work, the outcome of his war experiences. In 1907 he had given up his University teaching in experimental psychology; for six years before the war he had published nothing of psychological

or physiological interest. This was a period in which Rivers devoted himself wholly to the ethnology and sociology of primitive peoples. The outbreak of war found him for the second time visiting Melanesia for ethnological field work. Failing at first to get war work on his return to England, Rivers set himself to prepare the Fitzpatrick Lectures on "Medicine, Magic, and Religion," which he had been invited to deliver to the Royal College of Physicians of London in 1915 and 1916. In 1915 his psychological and ethnological researches were recognised by the award to him of a Royal Medal by the Royal Society, of which he had been elected a Fellow in 1908. In July, 1915, he went as medical officer to the Maghull War Hospital, near Liverpool, and in 1916 to the Craiglockhart War Hospital, Edinburgh, receiving a commission in the R.A.M.C. In these hospitals he began the work on the psychoneuroses that led him to his studies of the unconscious and of dreams, which resulted in his well-known book, *Instinct and the Unconscious*, published first in 1920 (already in a second edition), and in a practically completed volume on *Conflict and Dream*, which is to be published posthumously. From 1917 he acted as consulting psychologist to the Royal Air Force, being attached to the Central Hospital at Hampstead.

This period not merely marks a new phase in Rivers's work, but is also characterised by a distinct change in his personality and writings. In entering the Army and in investigating the psychoneuroses he was fulfilling the desires of his youth. Whether through the realisation of such long-discarded or suppressed wishes, or through other causes—*e.g.*, the gratified desire of an opportunity for more sympathetic insight into the mental life of his fellows—he became another and a far happier man. Diffidence gave place to confidence, hesitation to certainty, reticence to outspokenness, a somewhat laboured literary style to one remarkable for its ease and charm. Over forty publications can be traced to these years, between 1916 and the date of his death. It was a period in which his genius was released from its former shackles, in which intuition was less controlled by intellectual doubt, in which inspiration brought with it the usual accompaniment of emotional conviction—even an occasional impatience with those who failed to accept his point of view. But his honest, generous character remained unchanged to the last. Ever willing to devote himself unsparingly to a cause he believed right, or to give of his best to help a fellow-being in mental distress, he worked with an indomitable self-denying energy, won the gratitude and affection of numberless nerve-shattered soldier-patients, whom he treated with unsurpassed

judgment and success, and attracted all kinds of people to this new aspect of psychology. Painters, poets, authors, artisans, all came to recognise the value of his work, to seek, to win, and to appreciate his sympathy and his friendship. It was characteristic of his thoroughness that while attached to the Royal Air Force he took numerous flights, "looping the loop" and performing other trying evolutions in the air, so that he might gain adequate experience of flying and be able to treat his patients and to test candidates satisfactorily. He had the courage to defend much of Freud's new teaching at a time when it was carelessly condemned *in toto* by those in authority who were too ignorant or too incompetent to form any just opinion of its undoubted merits and undoubted defects. He was prepared to admit the importance of the conflict of social factors with the sexual instincts in certain psychoneuroses of civil life, but in the psychoneuroses of warfare and of occupations like mining he believed that the conflicting instincts were not sexual, but were the danger instincts, related to the instinct of self-preservation.

Thus in the best sense of the term Rivers became a man of the world, and no longer a man of the laboratory and of the study. He found time to serve on the Medical Research Council's Air Medical Investigation Committee, on its Mental Disorders Committee, on its Miners' Nystagmus Committee, and on the Psychological Committee of its Industrial Fatigue Research Board. He served on a committee, of ecclesiastical complexion, appointed to inquire into the new psychotherapy, and he had many close friends among the missionaries, to whom he gave and from whom he received assistance in the social and ethnological side of their work.

In 1919, in which year he received honorary degrees from the Universities of St. Andrews and Manchester, he returned to Cambridge as Prælector in Natural Sciences at St. John's College, and began immediately to exercise a wonderful influence over the younger members of the University by his fascinating lectures, his "Sunday evenings," and, above all, by his ever-ready interest and sympathy. As he himself wrote, after the war work, "which brought me into contact with the real problems of life . . . I felt that it was impossible for me to return to my life of detachment." And when a few months before his death he was invited by the Labour Party to a still more public sphere of work, viz., to become a Parliamentary candidate representing the University of London, once again he gave himself unsparingly. He wrote at the time: "To one whose life has been passed in scientific research and education the prospect of entering practical politics can be no light matter.

But the times are so ominous, the outlook both for our own country and the world so black, that if others think I can be of service in political life I cannot refuse." On several occasions subsequently he addressed interested London audiences, consisting largely of his supporters, on the relations between Psychology and Politics.

Rivers's views on the so-called herd instinct were the natural outcome of those which he had put forward during the preceding five years and collected together in his *Instinct and the Unconscious*. His aim in writing this book was, as he says, " to provide a biological theory for the psychoneuroses," to view the psychological from the physiological standpoint. He maintained that an exact correspondence holds between the inhibition of the physiologist and the repression of the psychologist. He regarded mental disorders as mainly dependent on the coming to the surface of older activities which had been previously controlled or suppressed by the later products of evolution. Here Rivers went beyond adopting Hughlings Jackson's celebrated explanation of the phenomena of nervous diseases as arising largely from the release of lower-level activities from higher-level controls. He further supposed that these lower-level activities represent earlier racial activities held more or less in abeyance by activities later acquired. This conception he derived from his work with Henry Head on cutaneous sensibility. Rivers could see but " two chief possibilities " of interpreting the phenomena disclosed in the study of Head's arm. Either epicritic sensibility is protopathic sensibility in greater perfection, or else protopathic sensibility and epicritic sensibility represent two distinct stages in the development of the nervous system. Failing to see any other explanation, he adopted the second of these alternatives. He supposed that at some period of evolution, when epicritic sensibility, with its generally surface distribution, its high degree of discrimination, and its power of accurate localisation, made its appearance, the previously existing protopathic sensibility, with its punctate distribution, its " all-or-nothing " character, and its broad radiating localisation, became in part inhibited or " suppressed," in part blended or " fused " with the newly acquired sensibility so as to form a useful product. He supposed that the suppressed portion persisted in a condition of unconscious existence, and he emphasised the biological importance of suppression. He considered at first that the protopathic sensibility " has all the characters we associate with instinct," whereas the later epicritic sensibility has the characters of intelligence or reason. So he came to hold that instinct " led the animal kingdom a certain distance in the line of progress," whereupon " a

new development began on different lines," "starting a new path, developing a new mechanism which utilised such portions of the old as suited its purpose."

Evolutio per saltus was thus the keynote of Rivers's views on mental development. Just as the experience of the caterpillar or tadpole is for the most part suppressed in the experience of the butterfly or frog, so instinctive reactions tend to be suppressed in intelligent experience whenever the immediate and unmodifiable nature of the one becomes incompatible with the diametrically opposite characters of the other. Just as parts of the protopathic fuse with the later acquired epicritic sensibility, so parts of our early experience, of which other parts are suppressed, fuse with later experience in affecting adult character. "Experience," he explained, "becomes unconscious because instinct and intelligence run on different lines, and are in many respects incompatible with one another."

Rivers was compelled later to recognise "epicritic" characters in certain instincts. He came to suppose that "the instincts connected with the needs of the individual" and with the early preservation of the race are mainly "of the protopathic kind," whereas the epicritic group of instincts first appeared with the development of gregarious life. He recognised the epicritic form of mental activity in the instincts connected with the social life, especially of insects, and also in the states of hypnosis and sleep. Finally, he doubted the validity of the usual distinctions between instinct and intelligence.

Throughout his work on this wide subject Rivers endeavoured to give a strict definition to words which had hitherto been ambiguously or loosely used. He defined *unconscious experience* as that which is incapable of being brought into the field of consciousness save under such special conditions as "sleep, hypnosis, the method of free association, and certain pathological states." He defined *repression* as the self-active, "witting" expulsion of experience from consciousness, and *suppression* as the "unwitting" process by which experience becomes unconscious. Thus suppression may occur without repression. When one refuses to consider an alternative path of action, one represses it; when a memory becomes "of itself" inaccessible to recall, it is suppressed. When such a suppressed experience acquires an independent activity which carries with it an independent consciousness, it undergoes, according to Rivers's usage of the term, *dissociation*. Thus suppression may occur without dissociation. In its most perfect form, according to Rivers, suppression is illustrated by the instinct of immobility which forms one of the reactions to danger; the fugue (as also

somnambulism) is "a typical and characteristic instance of dissociation."

From his point of view Rivers was naturally led, wherever possible, to interpret abnormal mental conditions in terms of regression to more primitive, hitherto suppressed activities. He held that the hysterias are essentially "substitution neuroses," connected with and modified by the gregarious instincts, and are primarily due to a regression to the primitive instinctive danger reaction of immobility, greatly modified by suggestion. So, too, he held that the anxiety neuroses, which are for him essentially "repression neuroses," also show regression, though less complete, in the strength and frequency of emotional reaction, in the failure during states of phantasy to appreciate reality, in the reversion to the nightmares, and especially the terrifying animal dreams, characteristic of childhood, in the occurrence of compulsory acts, in the desire for solitude, &c. Indeed, because he believed that suppression is especially apt to occur, and to be relatively or absolutely perfect, in infancy, Rivers suggested that the independent activity of suppressed experience and the process of dissociation, as exemplified in fugues, complexes, &c., are themselves examples of regression.

He criticised Freud's conception of the censorship, substituting in place of that anthropomorphically-coloured sociological parallel the physiological and non-teleological conception of regression. He supposed the mimetic, fantastic, and symbolic forms in which hysterias and dreams manifest themselves to be natural to the infantile stages of human development, individual or collective. For him they were examples of regression to low-level characters, and not, as Freud supposes, ascribable to compromise formations to elude the vigilance of an all-protective censor. He regarded nightmares and war-dreams as examples of infantile states. He believed the absence of affect in many normal dreams to be natural to the infantile attitude, which would treat the situation in question with indifference. That absence of affect also arises from the harmless symbolic solution of the conflict. The affect of dreams is only painful, Rivers supposed, when they fail to provide a solution of the conflict, and is not due, as Freud holds, to the activity of the censor. In the social behaviour of primitive communities Rivers was able to find striking analogies to the characteristics of dreams, as described by Freud.

On the protopathic side he ranged the primitive instincts and emotions, and the complexes, together with the activities of the optic thalamus, and on the epicritic side intelligence and the sentiments, together with the activities of the cerebral cortex.

We are now in a position to examine Rivers's treatment of the gregarious behaviour of animal and human life, on which he was still engaged at the time of his death. In the gregarious instinct he recognised a cognitive aspect which he termed "intuition," an affective aspect which he termed "sympathy," and a motor aspect which he termed "mimesis." He used "mimesis" for the process of imitation so far as it was unwitting. "Sympathy" he regarded as always unwitting. "Intuition" he defined as the process whereby one person is unwittingly influenced by another's cognitive activity. But I feel sure that the term "unwittingly" is not to be considered here as equivalent to "telepathically." All that Rivers meant was that the person is influenced by certain stimuli without appreciating their nature and meaning. He preferred to employ the term "suggestion" as covering all the processes by which one mind acts on or is acted on by another unwittingly. He supposed that in the course of mental evolution epicritic characters displaced the early protopathic characters of instinctive behaviour owing to the incidence of gregarious life, especially among insects, and owing to the appearance and development of intelligence, especially in man. The suggestion inherent in gregarious behaviour implies some graduation of mental and bodily activity—an instinctive and unwitting discrimination distinct from the witting discrimination of intelligence. Suggestion, in primitive gregarious behaviour, as also in the dissociated state of hypnosis, and in its allied form, ordinary sleep, is prevented if witting processes be active; it "is a process of the unconscious," said Rivers. Both within the herd and during hypnosis, which he believed to be fundamentally of a collective nature, sensibility is heightened, so that the organism may be able to react to minute and almost imperceptible stimuli. Had he lived, Rivers would have carried this conception of the evolution of gregarious life still further by distinguishing between the more lowly leaderless herd and the herd which has acquired a definite leader. He would have traced the development of the new affect of submission and of the new behaviour of obedience to the leader, and he would doubtless have accredited the leader with the higher affects of superiority and felt prestige, with the higher cognition that comes of intuitive foresight, and with the higher behaviour of intuitive adaptation, initiative, and command. I expect, too, that he would have sketched the development of still later forms of social activity, complicated by the interaction and combination of intellectual and instinctive processes—the witting deliberations and decisions on the part of the leader, and the intellectual understanding of the reasons for their confidence in him and for their appropriate behaviour on the part of those who are led.

But it would be idle further to speculate on the ideas of which we have been robbed by Rivers's untimely death. Let us rather console ourselves with the vast amount of valuable and suggestive material which he has left behind and with the stimulating memories of one who, despite the fact that his health was never robust, devoted himself unsparingly to scientific work and to the claims of any deserving human beings or of any deserving humane cause that were made upon him. There are, no doubt, some who believe that Rivers's earlier experimental psychological work—on vision, on the effects of drugs, and on cutaneous sensibility—is likely to be more lasting than his later speculations on the nature of instinct, the unconscious, dreams, and the psychoneuroses. No one can doubt the scientific permanence of his investigations in the laboratory or in the field; they are a standing monument to us of thoroughness and accuracy combined with criticism and genius. But even those who hesitate to suppose that at some definite period in mental evolution intelligence suddenly made its appearance and was grafted on to instinct, or that epicritic sensibility was suddenly added to a mental life which had before enjoyed only protopathic sensibility—even those who may not see eye to eye with Rivers on these and other fundamental views on which much of his later work rested will be foremost in recognising the extraordinarily stimulating, suggestive, and fruitful character of all that he poured forth with such astounding speed and profusion during the closing years of his life. And, above all, we mourn a teacher who was not merely a man of science devoted to abstract problems, but who realised the value of and took a keen delight in applying the knowledge gained in his special subject to more real and living problems of a more concrete, practical, everyday character. Rivers's careful methods of investigating cutaneous sensibility and the *rationale* of his successful treatment of the psychoneuroses were directly due to his psychological training. So, too, his epoch-making discoveries and his views in the field of anthropology on the spread and conflict of cultures were largely due to the application of that training. Shortly before his death he was developing, as a committee member of the Industrial Fatigue Research Board, an intense interest in that youngest application of psychology, viz., to the improvement of human conditions in industrial and commercial work by the methods of experimental psychology applied to fatigue study, motion study, and vocational selection.

Unhappily, men of such wide sympathies and understanding as Rivers, combined with a devotion to scientific work, are rare. He himself recognised that " specialisation has . . . in recent years reached such a pitch that it has become a serious evil.

There is even a tendency," he rightly said, "to regard with suspicion one who betrays the possession of knowledge or attainments outside a narrow circle of interests" (*Brit. J. of Psychol.*, vol. x., p. 184). Let his life, his wisdom, his wide interests, sympathies and attainments, and the generosity and honesty of his character, be an example to us in our common object—the Advancement of Science.

ETHNOLOGY AND PSYCHOLOGY.

By G. Elliot Smith, M.D., F.R.S.

HOWEVER the disciplines of the study of man and the study of the human mind may seem to differ the one from the other, it has always been recognised that the investigation of custom and belief cannot be wholly divorced from psychology: but during the last decade Freud and his followers have become involved in an intrigue with ethnology which threatens disaster to both parties, and under no circumstances can lead to a stable union. The new teaching in ethnology, which is explained in the article by the late Dr. Rivers in this number, destroys the foundation of the belief in the reality of "typical symbols," and brings to the ground the fantastic speculations built upon it by Freud and Jung.

The history of Freud's teaching is rich in contradictions and illogical claims. But the most remarkable feature of this great reform in psychological method is the fact that most of the opposition aroused against it has been the result of Freud's departure from his own principles. The essence of his innovation was the fact that he took quite seriously the patient's symptoms, his phantasies and his dreams, and made a real attempt to discover how they originated and to explain their significance. But after pursuing this aim up to a certain point and illuminating the patient's beliefs in the light of his individual experience, the Freudian psychologist suddenly, and quite inconsequently, throws overboard all the essential principles of Freud's great reform, and attempts to force these products of the individual mind into conformity with something that is not the result of experience. He assumes certain instinctive modes of reaction and certain hereditarily transmitted impulses towards symbolisation, which are foreign alike to any serious psychologist's conception of instinct, or to the knowledge of any man in the street as to the origin of symbols. To bolster up claims that are in themselves utterly preposterous, as well as contrary to the essence of his own teaching—*i.e.*, of the dominating influence of individual experience—Freud called in the aid of the orthodox doctrines of ethnology, unfortunately for him, at the moment

when, as Dr. Rivers explains in his article, they were beginning to crumble.

During the last half-century ethnologists have become more and more committed to the view that the similarities in custom and belief so strikingly displayed in the early civilisations of widely-scattered peoples might have been brought about, not by the diffusion of knowledge and example from one group of people to another, but by the independent development of these likenesses as the result of some innate quality of the human mind. There is nothing new in this doctrine. It was being taught in 1788 by Dr. William Robertson, Principal of the University of Edinburgh[1], and again in 1835 by Hugh Miller: but it was not until Bastian (1860) decked it out in the terminology of misapplied Herbartian philosophy that any attention was given to this remarkable fallacy. Bastian's *Völker-Gedanken* can truly be regarded as the parents of the " typical symbols " of the Freudian doctrine. Bastian's theories, put forward in uncouth and unusually obscure German, attracted little notice until Tylor adopted them and gave them expression in lucid English. This did not happen until Tylor himself came under the influence of the Oxford atmosphere and used biological analogies, which, although wholly inappropriate and misleading, captured the popular imagination in the seventies of last century. For the reference to Tylor's doctrine as " evolution " revealed a singular inability to understand the meaning of a simple biological term, the more exact parallel being the claim for " spontaneous generation," with all its unfortunate implications of errors of observation and mistaken interpretation. However, Tylor's version of the teaching of Bastian, with its misleading labels " evolution " and " animism," was adopted far and wide, and provided the jargon that for more than half a century did duty for serious argument and inhibited real investigation. Freud and his disciples eagerly accepted this ethnological teaching as the true gospel, the prophets of which were Sir James Frazer, of *The Golden Bough*, and Professor Wundt, the author of *Völkerpsychologie*. For if the ethnologists were able to assure Freud and his followers that scattered peoples had independently the one of the other devised the same myths and folk-tales, then the reality of " typical symbols " was proved. Not only so, but the field was open for the Freudians to repay the ethnologists by explaining what their identical beliefs and myths really mean! Hence Freud, Abraham, Rank, and the rest of them began to provide the world with such striking demonstrations of reductio

[1] *The History of America*, vol. i., book 4.

ad absurdum as *Totem and Taboo*, *Dreams and Myths*, *The Birth of the Hero*, inter alia, and Jung to write about "the collective unconscious" and the phylogeny of symbols. What renders all this speculation so obviously futile is that none of these writers has taken the trouble to go to first-hand sources for his information, for had he done so the baselessness of his pretended explanations could not have failed to become patent. Instead of this, the Freudians are satisfied to get their ethnological information second-hand from the writings of Sir James Fraser and Wundt, two authors deeply committed to the Bastian-Tylor fallacy.

The importance of the article by Dr. Rivers is that it sketches the history of a movement to destroy the fallacies of supposed independent evolution of custom and belief by proving that in ancient times, as at present, knowledge and men's interpretation of their experience were diffused abroad throughout the world. The common features of myths and folk-tales are not expressions of instinct or "the collective unconscious," nor are they "typical symbols." They are due to the diffusion from one centre of an arbitrary tale which had a definite history differing vastly from that postulated by either Freud or Jung.

THE AIMS OF ETHNOLOGY.[1]

By the late W. H. R. Rivers, F.R.S.

I WANT this evening to tell you what the science of ethnology is trying to do, and how it hopes to contribute to the general sum of knowledge. I shall also speak of some of its needs if it is to fulfil these aims.

It is the business of ethnology to study the nature of the different groups, whether we call them nations, tribes, or what not, into which Man has come to be divided. Each of these groups, even the simplest tribe of Australia or Tierra del Fuego, has a complex character and shows features of culture, such as language, social organisation, religion, arts and crafts, each of which forms a special subject of study. Some of these studies, such as philology and sociology, are already advanced enough to have received names, and form mental disciplines recognised in the universities and schools. It is the task of ethnology to study these subjects, not as abstract isolated branches of human culture, but to consider them comprehensively as manifestations of the activities of groups of mankind. Its special aim is to understand the relation of these groups to one another, not only at the present time, but in the past. It is its business to discover how it has come about that Man presents his vast diversity of speech and thought and custom, and to find the explanation of the many points of similarity which constantly present themselves throughout the diversity. I can perhaps best illustrate the nature and aims of the science by a brief record of its history, a history even now of very short duration.

So long as it was universally believed that Man came into existence by a special act of creation, and owed his diversity of speech and custom to the miracle of Babel, there was little scope for a science of ethnology. It was generally held in the past that the more backward peoples of the earth, or rather those whom we regard as backward because they are different from ourselves, were so because they had degenerated from the state in which they were created. Moreover, when people speculated

[1] This lecture was originally prepared for the instruction of students of anthropology in Cambridge, but during the last three years Dr. Rivers had delivered it in many universities and schools in England and America.

concerning the similarities and diversities of human culture, it is easy to understand why they should ascribe the similarities to such dispersals as tend to follow the great catastrophes of human history. It was even natural that such similarities as were especially familiar through the Biblical record should be ascribed to the dispersal of the Jews. The frequent belief in the widespread influence of the lost Ten Tribes was, in the then state of the subject, a legitimate view for which it was even possible to provide some evidence.

When the subject began to be studied about fifty years ago by those trained in scientific methods, this line of thought was dominant, and the work of the writers of that time, such as Meadows Taylor,[1] Lane-Fox,[2] Fergusson,[3] Park Harrison[4], and Miss Buckland,[5] was guided by the idea that civilised man had travelled far over the world and that the similarities found in widely-separated parts of the earth are the outcome of the diffusion of features of culture from some part of the world, the special conditions of which had led to their appearance and development.

About forty years ago a great change took place in the opinions of those who devoted themselves to the study of human culture and society. The idea of evolution, which was then slowly forging its way into general acceptance, became an article of almost universal belief among students of anthropology; and as the result of a misunderstanding of what exactly biologists meant by evolution, they put forward the remarkable claim that, after an original dispersal, which they did not attempt to explain, the different varieties of mankind had developed their cultures independently. They accepted the doctrine of the German traveller and ethnologist, Adolf Bastian, that the similarities between the beliefs and customs of different peoples are due to the uniformity of the constitution of the human mind, so that, given similar conditions of climate and conditions of life, the same modes of thought and behaviour come into existence independently, which are in no way due to the influence of one

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[1] Meadows Taylor, "On Prehistoric Archæology of India," *Journ. Ethnol. Soc.*, New Series, vol. i., 1868-9.

[2] A. Lane-Fox, "Remarks on Mr. Hodder Westropp's Paper on Cromlechs, with a Map of the World, shewing the Distribution of Megalithic Monuments,"

[3] *Rude Stone Monuments*, London, 1872.

[4] "On the Artificial Enlargement of the Earlobe," *Journ. Anthropol. Inst.*, vol. ii., 1872-3, p. 190.

[5] A. W. Buckland, "The Serpent in Connection with Primitive Metallurgy," *Journ. Anthropol. Inst.*, vol. iv., 1874-5. *Ibid.*, "Ethnological Hints afforded by the Stimulants in use among Savages and among the Ancients," *Journ. Anthropol. Inst.*, vol. viii., 1878-9. *Ibid.*, "On Tattooing," *Journ. Anthropol. Inst.*, vol. xvii., 1887-8.

people upon another. When I began the study of ethnology twenty years ago this point of view had become absolutely dominant, at any rate in this country and America, and I accepted it without question. In common with others, I believed in the doctrine that similarities of thought and custom throughout the world arose through similarity of external conditions, and ignored the obvious fact that the similarities are found amidst external conditions of the most diverse kind—in islands and continents; in tropical and in temperate climates; among agricultural, hunting, and pastoral peoples; while, on the other hand, diversities are found within regions uniform in climate and social habit, while in many parts of the earth diversities of the most striking kind are found within a region only a few square miles in size.

It may be instructive to consider for a moment one or two considerations which greatly contributed to strengthen the belief in independent origin. One was the absence or very imperfect character of the means of navigation in parts of the world where, if there had been external influence at all, this must have come by sea. Thus, the idea that no influence can have reached America across the Pacific Ocean seemed to receive support from the absence of any but the rudest forms of sea-craft along the whole of the western shore of the continent. This was put forward as a cogent piece of evidence that the great Inca culture of Peru, with its very advanced character, and in spite of its many points of close resemblance with cultures of the Old World, was nevertheless the independent outcome of the fertility and ingenuity of mind of the indigenous inhabitants of America. It was only necessary to show, as I was able to do,[1] that there are well-established cases, even among the inhabitants of islands, where the art of navigation has once existed and has disappeared. If the inhabitants of islands can give up an industry which would seem to be essential to their welfare, there is no great difficulty in assuming the degeneration or even disappearance of the art of navigation among the inhabitants of the coasts of a continent.

This special case is only one example of the neglect of the factor of degeneration in human culture. So long as students were under the influence of the idea of special creation, degeneration was the chief agency by which features of human culture were explained, but with the incoming of the idea of evolution this factor was thrown wholly on one side, or was used only to explain relatively unimportant facts. There was a com-

[1] "The Disappearance of Useful Arts," *Festskrift t. Edvard Westermarck*, Helsingfors (1912), p. 109.

plete failure to appreciate the vast part which degeneration is continually playing in the history of human institutions.

It may be noted at this point that, though Germany must be regarded as the home of the idea of independent origin, there has never been the unanimity of acceptance of the doctrine in that country which was at one time present here and in America. Ratzel, the author of a large popular work on the *Early History of Mankind*, was an advocate of the view that similarities of culture are due to transmission from some centre of origin, and during the early years of the present century a school grew up in Germany, of which Graebner[1] and Ankermann[2] were the most important members, which attempted to formulate a definite scheme of a succession of cultures which had spread over the world and produced the wide distribution of many elements of culture. This work was almost completely disregarded in this country, and the movement which has taken place here in favour of transmission as the source of similarities of human culture has been independently worked out during the last ten years on lines wholly different from those of the German ethnologists.

In describing this movement it will be best to begin with the work of Elliot Smith. In the course of anatomical investigation of a large number of mummies from many different periods of Egyptian history, it became evident that at the beginning of the third millennium B.C. there had been an invasion of people from the north with heads somewhat rounder than those of the predynastic inhabitants of the country, and with features of the skull of the kind now usually known as Armenoid.[3] When Elliot Smith returned to England he found that skulls of the same type as those which had made their way into Egypt from the north were numerous in Europe, including these islands, but at first no evidence presented itself to his notice in favour of a wider distribution. On coming to Cambridge to examine, however, in 1911, Elliot Smith found skulls with definite Armenoid characters among those put out to test the candidates. These skulls had once belonged to natives of the Chatham Islands, south of New Zealand, a place almost as remote from Egypt or Armenia as could well be found. Being thus led to entertain the idea of extensive movements of early Man about the earth, Elliot Smith studied the distribution of certain features of culture, such as

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[1] "Kulturkreise u. Kulturschichten in Ozeanien," *Zeitschr. f. Ethnol.*, xxxvii. (1905), pp. 39; "Die melanesische Bogenkultur u. ihre Verwandten," *Anthropos*, iv. (1909), p. 726 and O. 998.

[2] "Kulturkreise u. Kulturschichten in Afrika," *Zeitschr. f. Ethnol.*, xxxvii. (1905), p. 54.

[3] *The Ancient Egyptians and Their Influence upon the Civilization of Europe*, London (1911), p. 95.

mummification and megalithic architecture, in which he had become interested during his stay in Egypt. He found features of distribution which led him to believe that these two manifestations of human activity had arisen in Egypt and spread therefrom to the many parts of the earth where they are now found.[1] The distribution of megalithic monuments especially pointed to their builders having travelled in the main by sea[2], so that the nature of the means of navigation became of great importance. It was at this stage that I was able to contribute by showing, as I have already mentioned, that even so essential an art as navigation is not immune from the process of degeneration.

About the time that Elliot Smith was engaged in working out the evidence for the world-wide spread of mummification and megalithic architecture, I was studying material brought back from an expedition to Melanesia in 1908.[3] This study led me to the view that Melanesian culture could only be explained on the supposition that there had been a succession of intruding peoples, one of which had brought with it the practice of preserving the dead and the making of megalithic monuments. I made it my business to try to ascertain the kind of process which takes place when such elements of culture from outside, perhaps of a relatively advanced order, are introduced among so rude a people as the Melanesians. I came to the conclusion that most of the social practices of Melanesia are the result of the interaction between the beliefs and customs of immigrant and indigenous peoples; that when a strange custom brought by an immigrant people so takes the fancy of the indigenous population that they adopt it as their own, it suffers great modification, sometimes in the direction of development, and sometimes of such a kind that we can only regard the result as degeneration. I was led to the view that the current concept of independent evolution, which I had accepted so blindly, was a fiction. The evidence from Melanesia points to advance as taking place only under external influence, and to a mode of development in which isolation spells stagnation. It suggests that an isolated people do not invent or advance, but that the introduction of new ideas, new instruments, and new techniques leads to a definite process of evolution, the products of which may differ greatly from either the indigenous or the immigrant constituents, the result of the

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[1] *The Migrations of Early Culture*, Manchester (1915).

[2] See W. H. R. Rivers' "The Contact of Peoples," *Essays and Studies presented to William Ridgeway*, Cambridge (1913), p. 489.

[3] *Rep. Brit. Assoc.*, Portsmouth (1911), p. 490; *The History of Melanesian Society*, Cambridge (1914).

interaction thus resembling a chemical compound rather than a physical mixture. The study of Melanesian culture suggests that when this newly set up process of evolution has reached a certain pitch it comes to an end, and is followed by a period of stagnation which endures until some fresh incoming of external influence starts anew a period of progress.

In working out our schemes of transmission and evolution, Elliot Smith and I were met by two serious difficulties, one of a more special, the other of a more general kind. Both of these difficulties have been surmounted through the work of W. J. Perry. The more special difficulty is concerned with the distribution of megalithic monuments, which forms so excellent a touchstone of the rival views. Elliot Smith and I found definite reason to believe that the megalithic art, together with a cult of the sun, had found their way from Europe or Asia into Oceania,[1] and passing still further across the Pacific had influenced the culture of America, and especially of Peru. In going from India to Oceania the mariners who carried the art of building these rude stone monuments must have passed through the East Indian, or, as it is often called, the Malay, Archipelago. If our views are to hold good, there should be evidence of their handiwork in the islands of this region. Such evidence was generally believed to be absent, and this supposed absence had so impressed one advocate of the unity of the megalithic culture, Professor J. Macmillan Brown, of New Zealand,[2] that he advanced the view that the culture had spread across the continent of Asia, and had then reached the islands of the Pacific by way of Japan. Mr. Perry undertook a complete survey of the Indonesian evidence.[3] He found, in the first place, that in certain islands of the East Indian Archipelago, especially in Sumba, there were monuments, in the form of dolmens, closely resembling those of other parts of the world, but that these had a more limited distribution than we should expect if this archipelago had been the pathway of the carriers of the megalithic culture. He therefore turned his attention to the distribution of stone-work in general in Indonesia, and found a remarkable correspondence between it and certain other elements of culture, the general distribution of which had led Elliot Smith to connect them with the megalithic art. Perry came to the conclusion that megalithic monuments were few in Indonesia, because the culture of their makers had

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[1] G. Elliot Smith, *op. cit.*; W. H. R. Rivers, "Sun-cult and Megaliths in Oceania," *American Anthropologist* (N.S.), vol. 17 (1915), p. 431.

[2] *Maori and Polynesian*, London (1907).

[3] *The Megalithic Culture of Indonesia*, Manchester (1918).

suffered great modification in this region, so that the art of stone-working, which elsewhere had expended itself in monuments of vast size, had been here content to make stone seats and stone offering places, and to use stone in the construction of graves. It is possible that a larger number of definitely megalithic remains may yet be found in Indonesia, but in the meantime Perry has shown reason to believe that their scarcity is due to some conditions which led people, attaching great importance to the use of stone in their religious rites, to practice their art in a more modest fashion than in their original home, and even more modest than in regions farther to the east.

The other contribution made by Perry is of still greater importance. When the facts began to lead us to the view that in remote ages Man had undertaken voyages to the most distant parts of the earth, it was difficult to see what could have acted as his motive. About this time geologists and archæologists had put forward the view that there had been a periodical drying up of Asia, and Huntington especially had written about it under the metaphorical title, *The Pulse of Asia*.[1] Such a drying up would have led to a great displacement of population, a displacement to which silent witness is borne by the large and once populous cities now buried in the sands of the central Asiatic desert.

Believers in the wide movements of Man throughout the world were inclined to ascribe his early migrations to the need for home and food, brought into existence by the desolation of a region which must have housed and fed vast numbers of people. Such a need might account for pressure of population in other parts of Asia, or even for movements such as we know to have taken place eastwards to the Malay Archipelago, and westwards into Africa. It is difficult to see, however, how any pressure of population in Asia can have produced movements which led men as far afield as the islands of the Pacific and the continent of America.

However remote the age with which we are dealing, it is always useful to look at home for the clue to motives which have guided the behaviour of Man. If we had done this, we should not have been so long in discovering the motives of the megalithic wandering. It was reserved for Perry to find this motive. Elliot Smith had, at the beginning of 1915, mapped out the areas which he knew, or inferred, to have been the seats of megalithic influence. He sent Perry a copy of this map. About the same

[1] London (1907).

time he informed him that Mrs. Zelia Nuttall had claimed that the founders of American civilisation had shown a special appreciation of pearls and precious metals. A chance examination of an economic atlas enabled Perry to combine these two items of information, for he saw that the distribution of pearl-shell in the Pacific Ocean agreed so nearly with Elliot Smith's megalithic areas that the presence of pearls would provide a sufficient motive for the settlements in these regions. Further examination showed that, in inland areas, the chief motive for the megalithic settlements was supplied by the presence of gold and other forms of wealth. He therefore put forward the view that the motive which had led the ancient voyagers so far afield was precisely that which acts as the essential stimulus to our own migrations, viz., the search for objects needed to satisfy human needs, material, æsthetic and religious.[1] In our own case it is chiefly the satisfaction of material needs which has led us to the far-distant regions of the earth, though the extent of the missionary movement and the great part taken by this movement in the spread of our culture show that material needs have not stood alone. In the earlier movements of mankind it is probable that needs of a religious kind, or, at any rate, of a less material kind, were more prominent, and that even such an object of gold was sought because of its supposed magical or religious properties long before it became the vehicle of currency. It is probable that one of the earliest motives which led men widely about the world was the search for an elixir of life by which to restore youth and prolong human existence.[2]

As might be expected, it has been found that the correspondence between the distribution of gold workings and megalithic monuments is not exact, but where such stone structures occur dissociated from gold there are usually other objects of wealth which would have acted as the motives for settlement. Thus, round the shores of the Baltic, where megalithic monuments abound but gold is absent, there is the amber, which, through its supposed religious or magical properties, had so great an attraction for Man in early times that the ancient trade in amber between the north and south of Europe continued far into the Middle Ages.

In other parts of the world, such as the shores of Southern India and in some parts of the Pacific, it would seem, as has been

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[1] "The Relationship between the Geographical Distribution of Megalithic Monuments and Ancient Mines," *Mem. and Proc. Manchester Lit. and Phil. Soc.* (1915).

[2] G. Elliot Smith, *The Evolution of the Dragon*, Manchester, 1919.

said, that pearls and pearl-shell were the attraction, while there is reason to believe that elsewhere spices and odorous resins, needed to embalm the dead, were among the objects sought by these ancient explorers of the seven seas. Mr. Perry is now engaged in the more minute comparison of the distribution of gold working with that of megalithic monuments and of other elements of culture, such as terraced irrigation, which are associated with them.

He will be much encouraged in his quest by recent[1] work in a field which would seem at first sight a most unlikely region to furnish confirmation of his hypothesis. In New Guinea, perhaps the least known and wildest of all the larger regions of the world, various objects in stone have been found,[2] often buried away feet below the surface of the ground, mortars and pestles being especially prominent among the objects so found. The present natives disclaim all knowledge of the art by which such objects were made, and ascribe their manufacture to a people who long ago came and settled among them. Lieut. Chinnery, to whom we owe much of our knowledge of these objects and of the beliefs of the natives about them,[3] has pointed out that these examples of native stone-work have been found chiefly on gold-bearing districts, and that in some cases there are stone-circles or other forms of ancient stone-work in the neighbourhood. Mr. Chinnery has suggested that the pestles and mortars were used by their makers to crush the quartz from which they extracted the precious substance in the quest of which they had ventured so far afield.

Now that accumulating evidence is pointing so clearly to early voyages comparable, both in motive and extent, with those of our own epoch, we are naturally beginning to speculate about the original home of the culture which was thus diffused, about the race of the voyagers, and about the date at which the voyages occurred. Of these three problems, that which is most open to investigation, and is at the same time essential to the solution of the other two, is the centre from which such practices as megalihic architecture, sun-cult, mummification of the dead, and irrigation were diffused.

From the beginning of his work Elliot Smith has insisted, in the face of bitter opposition and even obloquy, that this original

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[1] This lecture was written in 1919.

[2] C. G. Seligmann and T. A. Joyce, "On Primitive Objects in British New Guinea," *Anthropological Essays presented to Edward Burnett Tylor*, Oxford (1907), p. 325.

[3] "Stone-work and Goldfields in British New Guinea," *Journ. Roy. Anthropol. Inst.*, vol. xlix. (1919), p. 271.

home was Egypt. He believed that the geographical features of this country furnish just such conditions as were needed to bring into existence the practices which have been so widely diffused. Thus, to take mummification as an example, we know that the special character of the soil of Egypt preserved so completely for thousands of years the bodies of the dead pre-dynastic Egyptians who were interred in the contracted position, that Elliot Smith has been able to study the structure even of so perishable an organ as the brain.[1] When the idea arose of placing the bodies of the dead in rock-cut tombs, or in structures representing the house, there would no longer be the close contact of the body with the soil which was essential to this preservation, and some kind of artificial process became necessary to prevent the natural decay. Thus was started a process by the development of which arose the practice of mummification of the dead, the full history of which in Egypt has been worked out by Elliot Smith.[2] During a visit to Australia just before the outbreak of the war, he had an opportunity of examining a mummy from the islands of Torres Straits, between Australia and New Guinea, and found that when preserving their dead the inhabitants of these islands made incisions in the flank or perineum, and sutured the wounds so made in just the same places and manner as were customary at a certain period of Egyptian history. Moreover, they extracted the brain substance through the foramen magnum, and made incisions on the extremities just as was done in Egypt at this period.[3]

This correspondence in the details of an art is of great importance as evidence of transmission, for it is difficult to explain it on any hypothesis other than that the art spread from one place to the other. The old view that these details were discovered independently in Torres Straits would make it necessary to believe that, in a climate where decomposition of the dead sets in a few hours after death, the rude savages of Torres Straits discovered a technique which cost the highly cultured Egyptian of dynastic times many centuries of patient trial and research.

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[1] *Journ. of Anat. and Physiol.*, vol. xxxvi. (1902), p. 375.

[It was Dr. Rivers himself who, in 1900, first called my attention to the preservation of the brain in pre-dynastic Egyptian bodies, and thus incidentally introduced me to anthropological investigation. At the time he was working at the problems of colour vision of the natives in Upper Egypt, and happened to see desiccated brains in the skulls brought to light there by Dr. Randall-MacIver.—G.E.S.]

[2] See references in *The Migrations of Early Culture*, pp. 141-2.

[3] *The Migrations of Early Culture*, p. 21.

Elliot Smith had already shown[1] that the dolmens found in different parts of Europe have details of structure which point to their derivation from the mastaba, the original flat-topped superstructure of the Egyptian tomb of the Pyramid age. At one end of many dolmens there is a stone with a hole in it, and Elliot Smith believes that this represents the opening in the front of the mastaba through which food was passed to feed the dead lying within, while a structure which may be called the antechapel of the mastaba is often, though vaguely, represented in dolmens in front of the holed stone. Again, in Egypt the sun has an important place in the culture of the kings who made the great Pyramids of Egypt, and it is not necessary to insist on reasons why Egypt was the birth-place of irrigation. Geographical and climatic conditions made the association of these four practices natural in Egypt. If the culture of which they form part was carried about the world it will explain the presence of this association in regions where it is impossible to find any adequate motive for their origin by a process of independent evolution.

As I have already said, the view of Elliot Smith that Egypt was the original home of the megalithic culture has met with the most bitter opposition, but every year is tending to confirm its truth. The Rev. C. E. Fox, a missionary in the Solomon Islands, has during the last few months[2] sent us an account of the burial customs of the people of San Cristoval and other neighbouring islands in that region. He tells us that the dead of the chiefly clan called the Araha were buried on the top of mounds, made sometimes of stone, sometimes of earth. These mounds often tend to be pyramidal in shape, and in this case resemble almost exactly the flat-topped mastaba of Egypt. The body of the dead chief is placed in a recess within the mound, and a shaft leads from the surface of the mound to this recess, exactly as in the mastaba and pyramids of Egypt. On the top of the mound of San Cristoval there is often a structure composed of a table stone resting on three or four uprights, having thus the characteristic form of a dolmen. Under or by this dolmen is an image in human form, carved out of coral or stone, which is believed to represent the dead man and to act as the abiding-place of the ghost which left his body at his death. Not only does this image reproduce exactly one of the most characteristic features of the mortuary customs of the ancient Egyptian, but Mr. Fox draws

[1] "The Evolution of the Rock-cut Tomb and the Dolmen," *Essays and Studies presented to William Ridgeway*, Cambridge (1913), p. 493.

[2] This refers to 1919.

our attention to a special feature of the statues of San Cristoval which presents a most striking resemblance in point of detail with those of Egypt. The statues are seated, and at the back of the head there is a structure like a pig-tail which reaches down to the stone surface upon which the statue is placed. Mr. Fox writes to ask what this strange feature, quite unlike any existing head-dress of Melanesia, can mean, unaware that he is describing an almost exact representation of a similar feature of the statues of Cheops, Chephren, and Mycerinus, the builders of the great pyramids of Egypt.

One more detail. On the back of the Egyptian statues there is usually the representation of a falcon (often called an eagle or hawk). In San Cristoval the chiefs of the Araha whose bodies are buried in the flat-topped mounds have the eagle as their totem.

Moreover, the preservation of the bodies which are buried in these tombs is assisted by removing the abdominal viscera through an incision in the flank, exactly as was done in ancient Egypt. The resemblance between the mortuary customs of ancient Egypt and modern San Cristoval, so close and extending to so many points of detail, makes it incredible that they should have arisen independently in these two regions. We can be confident that mariners imbued with the culture of Egypt, if they were not themselves Egyptians, reached the Solomon Islands in their search for wealth, and that their funeral rites so impressed the people of these far-distant isles that they have persisted to this day.

It is a striking fact that the Solomon Islands were so named by the Spanish explorers of the sixteenth century who, having subdued the people of Central America, set out on further voyages of exploration across the Pacific, in order to discover the countries from which King Solomon obtained the gold and precious stones and timbers for the building of the temple. Finding these islands after their long voyage across the Pacific, they named them after the monarch whose enterprise they were seeking to emulate. After this brief visit of the Spaniards, the islands again passed out of our ken until the last century, and now we learn that the Spanish voyagers were somewhere near the truth when they named the islands after the Hebrew king, and that this region had indeed been reached, not by King Solomon's mariners, but by voyagers from one or other of the early civilisations of the Orient. Which of these civilisations furnished the home of these early wanderers it is not at present possible to say, but it may be of interest to dwell for a moment on the problem of the date at which the wanderings occurred. I must in the first

place note that Egyptian history provides us with our instruments for the dating of all the early civilisations of the world. If the culture of so remote and savage a region as the Solomon Islands has been influenced by Egypt, it may be possible by the nature of this influence to tell at the least when the early travellers set out upon the journey by which they were to plant their culture in such distant countries. Just as we now date a stratum of the remains of Cnossos by a sherd of Egyptian pottery, or a building of Palestine or Elam by the discovery of an Egyptian scarab, so may we hope to give an approximate date to customs or institutions of Melanesia or aboriginal America by the discovery of such practices as those which Mr. Fox is now recording.

I have now sketched only too briefly the process by which ethnology has attained its present state. I should like next to consider—it must be very briefly—where we hope that the science may come to stand in the general scheme of learning. In the first place, we believe that if we succeed in discovering the historical processes by which human activity has produced the existing cultures of the earth, we shall then be provided with a mass of material by the study of which we can formulate the laws which direct and govern the activities and fate of those groups, whether we call them tribes, nations, or empires, into which the peoples of the earth are divided, as well as the laws which determine the growth of the social customs and institutions of Mankind.

The science of ethnology may well put before it another goal. The records of our own past, and of the past of the great peoples from whom so much of our own culture is derived, are very incomplete, especially on the psychological side. We have no direct means of learning how these ancient peoples felt and thought, except through literary records. Excavations will doubtless yet bring to light many new documents, while the decipherment of the scripts and hieroglyphs of the Cretans, Hittites, and other long-perished peoples will doubtless some day add greatly to our knowledge. But there will always be large gaps in this knowledge, due to the imperfection of the literary record. Is it too bold a wish that some of these gaps may be supplied by our knowledge of the ideas, sentiments, and beliefs of the far-distant savages who still preserve habits and customs brought to them in long-past ages? Is it too much to hope that peoples who have preserved with such fidelity the material customs of those who once settled among them may have preserved with at least equal fidelity the social and religious beliefs of their visitors? If these hopes should be realised, the study of

even the rudest people of to-day may contribute to our understanding of those ancient cultures of Egypt, Sumer, Elam, and Babylon which, through their influence upon the Jews, have had so great an effect, not only on our religion, but on our ethical and social traditions. The people of Indonesia, New Guinea, and Melanesia hold beliefs concerning the duality of the soul which closely resemble those lately revealed by the study of the Pyramid texts as having been held in Egypt, and the study of rude beliefs concerning death, the life after death, and other mysteries may well supply links by which we may fill gaps in the literary record.

Before I finish I must say a word about the present situation of the science of ethnology in relation to its needs. This science has in one respect a unique position, and one which should arouse the interest, if not the compassion, of anyone who cares for learning. We have only begun to understand how to collect the rich store of material presented by the cultures of the outlying places of the earth at a moment when these cultures are rapidly vanishing. The movement of our civilisation which has put this rich store of material within our sight, if not yet within our grasp, has at the same time carried with it the seeds of a deadly disease by which this material is being swept away. The Tasmanians, a people closely allied to, but yet differing in many respects from, the Australian aborigines, are already gone. The Bushmen, the last representatives of a people once widely spread over Africa, and probably, as palæolithic art suggests, over parts of Europe, too, are almost gone, and only survive here and there in small numbers in inhospitable regions, such as the Kalahari Desert, where their complete extinction cannot be long delayed. The Hottentot, of equal interest in the past history of Africa, and possibly of much significance in the history of Egypt, will soon follow the Bushman. In the region I know best, in Melanesia and Polynesia, many tribes have already disappeared.[1] On my last visit to the New Hebrides I heard of just three natives left in the island of Aore, on whose coast sherds of pottery bear witness that not long ago it bore a numerous and thriving population. In the island of Espiritu Santo I visited the Vulua tribe, which twenty years ago, according to the estimate of Mr. Bowie, the intrepid and learned missionary of that district, numbered two hundred people. I found a wretched remnant of fifteen to twenty people so degraded and hopeless that I failed to arouse any interest in their customs, and had to be content with a few

[1] On this subject see *Essays on the Depopulation of Melanesia*, edited by W. H. R. Rivers, Cambridge, 1922.

specimens of their language. This differed so greatly from that of surrounding tribes as to show that if they had been visited ten years ago we should have obtained a record of a culture which might have supplied links to assist us to understand the past history of the island. Ten years hence there will almost certainly be dozens of tribes in the same state as those of Aore or Vulua. Even if, more fortunate, they manage to maintain life and material prosperity, their beliefs and the knowledge of their ancient culture will certainly disappear, for it is only from the old men of such peoples that information of value can be obtained. With every old man who dies in Melanesia there goes, and goes for ever, knowledge which the scholars of the future will regard as of inestimable worth. The two men who helped me most during my visit to Melanesia twelve years ago were already dead before I had been able to publish the facts which through their devoted interest I was able to record. Lately I have heard that the man from whom I learnt most in my visit to the New Hebrides only seven years ago is already dead, a victim to dysentery, which forms perhaps the most potent instrument for the undoing of the people. I have told you this evening of work which shows how rich a treasure-house of knowledge exists in Melanesia, knowledge now easily accessible and only waiting to be garnered. Often it exists in a form which suggests the nuggets of a gold field, but differing from the metal in being so evanescent that it will disappear for ever if not transmuted into the lasting monument provided by the written word. Perhaps some of you as administrators, missionaries, or doctors will go to places where these treasures are waiting for collection, and in such case you will, I hope, be able to spare time and trouble to learn how to collect and record the facts of which the science of ethnology has so great a need. Perhaps there are here some to whom the lure of the past makes such appeal that they may give themselves wholly to the task of adding to the small but growing pile of knowledge by which the early history of Mankind may be revealed.

RESPONSIBILITY AND MODERN PSYCHOLOGY.

By William Brown, M.D., D.S.c., M.R.C.P., Wilde Reader in Mental Philosophy in the University of Oxford.

ONE of the most characteristic features of modern intellectual life is the extraordinary degree of popular interest displayed in problems of a psychological nature. The general educated and semi-educated public would seem to have realized, by a kind of intuition or instinctive insight, the tremendous possibilities of development of mental science in the near future, and the great importance for practical life of a profounder knowledge of psychological laws.

Unfortunately, popular interest in the subject appears all too frequently as a fashion or fad of the moment, instead of a serious study; and catchwords like hypnotism, psycho-analysis, and auto-suggestion, with special jargon to match, monopolise attention and encourage an extremism which is foreign to the spirit of all true science.

It has been suggested that modern doctrines of psychology are tending to weaken the sense of moral responsibility, both in those who commit crimes and in those who pass judgment upon them. The truth is that psychology, as such, is not concerned with the central problem of responsibility at all. Its task is the more modest one of attempting to trace antecedent factors of wrong-doing in the criminal's heredity, in his previous mental constitution, and in the conditions of his environment.

Roughly speaking, most wrong-doing may be psychologically described as failure of social instincts to control merely self-regarding instincts, where such control is called for in the interests of the community. Such disorder of conduct may be due to excessive strength of impulses needing control, or to exceptional weakness of controlling factors, or to a disturbance of the intellectual life preventing the individual from knowing what he is doing. In some cases all these factors contribute to the resulting action.

If we turn to the legal definition of responsibility we find the intellectual factor alone explicitly mentioned. An individual is to be regarded as legally responsible if he is aware of the nature and quality of his act, or that what he is doing is wrong. But even on the intellectual plane it is clear that the application of this criterion must be accompanied by the two provisos—(1) that knowledge itself is a matter of degree, and (2) that effective knowledge of the act must include knowledge of the circumstances in which the act is done.

There are many forms of mental illness to which this criterion satisfactorily applies. Alcoholic mania, post-epileptic automatism, paranoia, mania, and melancholia are all obvious instances. A crime of violence may be committed by a certain class of epileptic in a dream state, or possibly in a state of complete unconsciousness, in which knowledge and control of his act are both in abeyance.

Such an act may occur either immediately after a fit or as a substitute for one. It is generally an act that has become habitual to the individual, or it may be a sort of caricature of an habitual act. Thus a butcher or a soldier may commit an apparent crime of violence in such a state of mind, whereas citizens following more peaceful occupations are not so likely to have acquired habitual modes of reaction which would lead to deeds of violence.

A person suffering from paranoia is under the influence of systematised delusions of persecution and jealousy, which may impair his judgment so far as to move him to deeds of violence against people of his immediate environment for which there is no objective justification whatever. A melancholic may be so weighed down with grief and so convinced of his own unworthiness that he may look upon suicide as a duty. His illness may cause a further delusion that some awful fate is in store for those near and dear to him, and under the influence of this fear he may kill wife and children with the object of saving them from a much more awful doom.

But in addition to such cases as these there is a whole class of individuals who suffer from overwhelming compulsion to acts of a criminal nature, a compulsion so strong that the powers of control of a normal man would be inadequate to hold them in check.

Kleptomania is a familiar instance of this. In this disease a patient steals, not for personal gain, but under the influence of an uncontrollable impulse to collect a certain type of object; like a jackdaw, he may collect objects of no intrinsic value to himself, however valuable they may be to their original owners, and,

having collected them, he loses all further interest in them. Thus one patient, a woman, was discovered to have collected 130 parasols from various shops and hidden them in an attic.

It is quite obvious that such a person could not be held responsible for a crime of theft in the same sense in which an ordinary thief is responsible. The uncontrollable impulse may sometimes be of a much more serious nature, and the patient may feel compelled to commit murder or some other deed of violence. Such patients are clearly aware of the seriousness of their condition, and come to a physician in the hope of being relieved from it. Psychological analyses of such cases as these often show that the events and phantasies of early childhood and strong repression of infantile tendencies are responsible for these impulses, so that although the patient is not fully responsible for the act to which he at the moment appears to be impelled, he is in a sense responsible for the mental tendencies of earlier life which he had not at the time adequately faced. Often such responsibility is extremely slight; far less than the responsibility of the people concerned with his upbringing.

These cases of impulsion are especially good illustrations of the advance of modern psychology in the problem of moral responsibility. The result towards which such investigations tend is not the abolition of responsibility, but its redistribution. Responsibility must be put on the right persons. In a sense, each one of us is his brother's keeper. Collective responsibility is often as real as personal responsibility, and often much more ruthlessly exacted in the world-process.

It is true that one of the leading investigators of modern psychopathology, Sigmund Freud, advocates the theory of rigid determinism, and, indeed, considers that he has proved determinism by his method of psycho-analysis. But such a belief rests on a misapprehension. Psychological determinism may be adopted as a working scientific principle in investigating the human mind, but it can never be proved by empirical observation. In physical science determinism is proved, more or less, by empirically determined facts of conservation of energy and of mass. Such proof is only possible by means of measurement. In the domain of mind, measurement has a more limited application; probably it is not directly applicable at all. Means of proving psychical determinism, therefore, escape our grasp.

The really serious objection to be brought against the psycho-analytical school of thought is that it restricts itself unduly to the investigation of the instinctive bases of mental life, and in its theoretical formulation of doctrine fails to do justice to the nature of volition or other of the higher forms of mental activity. It

has no right to deny personal responsibility, seeing that it has not yet begun to deal with the concept of responsibility at all.

THE RE-EDUCATION OF THE WILL: AUTO-SUGGESTION.

Many forms of psycho-neurosis, like many forms of criminal action, are in part due to defective will. For such cases treatment should take the form of re-education of the will. A certain amount of mental analysis is needed to remove obstacles in the way of effective volition, by re-synthetizing the patient's mind and giving him a cleverer insight into the mental forces at work within him and their relation to the conditions of his environment. But, paradoxical as it may seem, another very potent factor in the re-education of the will is a training in the practice of good auto-suggestion. Auto-suggestion is a factor in all completed volition. Professor G. F. Stout defines volition as "a desire qualified and defined by the judgment that so far as in us lies we shall bring about the attainment of the desired end because we desire it." Such "judgment" is synonymous with belief or confidence, which in its turn may be equated to auto-suggestion. And we find in practice that a course of suggestion treatment, including a training in auto-suggestion, does increase will-power if given in the right way. Backward children may in this way have their powers of concentration and initiative definitely and permanently increased. They acquire greater self-confidence and learn to avoid the inhibiting and crippling effects of fear of failure. When self-confidence is lacking, a situation arises which M. Coué has inaccurately formulated in the words: "When the will and the imagination are in conflict, the imagination always wins." Inaccurately, because in true or complete volition there can never be such conflict, since belief is an essential constituent of true volition. Where belief is absent, or replaced by fear of failure, volition is incomplete and more akin to wish. Indeed, Coué himself indicates this when he sums up the psychological situation in the words: "*Je voudrais bien, mais je ne peux pas.*" The conflict in these cases of faulty volition is really between two opposing suggestions, viz., suggestion of success and suggestion of failure, and the latter suggestion, being reinforced by the emotion of fear, wins the day. True volition includes a calm, settled conviction of success, so far as success depends upon the individual's own efforts. The man of strong will is one who habitually imagines success rather than failure, and whose self-assertive instinct is sufficiently developed and organized to ensure the necessary energy of execution. Professor W. McDougall defines volition as "the supporting or

re-enforcing of a desire or conation by the co-operation of an impulse excited within the system of the self-regarding sentiment." This definition, like that of Professor Stout, harmonises with our view that both mental analysis and suggestion are potent factors in the re-education and the strengthening of the will.

In conclusion, let it be repeated, modern psychology does not contest the reality of moral responsibility. It holds the view that criminals suffering from certain forms of mental disease are less fully responsible for their acts than are normal people. But it certainly does not countenance the view that all criminals suffer from mental illness, nor that mental illness is an invariably sufficient excuse for crime.

THE "INTELLIGENCE" OF INSTINCT.

By Percy Griffith, M.I.C.E.

SYNOPSIS.

1. The scope and purpose of the argument.
2. The point of view that of a Civil Engineer.
3. The chief human functions, "observing," "thinking" and "acting," and their correlation.
4. The prevalent practice of confusing pre-conceptional with post-conceptional activities when reviewed by introspection or retrospection.
5. The concept of specific forces as determinants of specific activities (or movements) applied to Instinct.
6. Summary of Definitions of Instinct abstracted from papers presented at Symposium on "Instinct and Intelligence," July 1920, and comments thereon.
7. Instinct redefined in terms of intelligence regarded as implying Pre-conceived Purpose.
8. Intelligence regarded as Foresight and divided into Personal Intelligence and Impersonal (or external) Intelligence, the latter characteristic of Instinct.
9. The relation between Reflex Action and Instinctive Activities.
10. Instinct as a substantive concept rather than an adjectival quality of "behaviour."
11. Instinct as a form of motive power or "force" involving both "Mechanism" and "Finalism."
12. The argument as limited to Physical Instincts but capable of extended application to Mental Instincts peculiar to Man.

1. The literature of Instinct is now so abundant that it is almost impossible for any one contributor to be familiar with the whole, and quite impossible for him to establish by quotation, or even by references, the extent to which his contribution is based upon previous publications. In what follows, I shall rely mainly upon the papers presented by Dr. C. S. Myers and Professors Lloyd Morgan, Wildon Carr, G. F. Stout, and Wm. McDougall to a Symposium on "Instinct and Intelligence," held in July, 1910, and published in Volume III of *The B. J. P.* (pp. 209—270). Since that date, two works of supreme importance to the student of Instinct have been published, namely, *Instinct in Man*, by Dr. James Drever, and *Instinct and the Unconscious*, by the late Dr. Rivers. The former contains a masterly synopsis of previous views of Instinct, but, for that reason, does not claim any striking novelty in

argument or conclusion. The latter is restricted to the specific evidence afforded by the treatment of neuroses resulting from the war, but, from this, deduces the striking influence of unconscious factors in human experience generally. My present contribution will deal with the nature of the conscious elements in Instinct, and be, for the most part, an endeavour to prove them external to the Conscious Ego of the organism concerned.

2. As this is my first contribution to the literature of Psychology, it may be desirable to explain that I am, by profession, a Consulting Engineer, having practised for a period of thirty years in the design of works for the supply of water to towns and large communities. I therefore approach the study of Instinct from the point of view of one who has been engaged in "directing the great sources of power in Nature for the use and convenience of man,"[1] and, in opposition to Prof. Lloyd Morgan, who regards "force" as a concept outside the range of science, I start by regarding Instinct as representing a particular "source of power in Nature" in this case, in living Nature, and, more particularly, in animals and man. To me it appears obvious that, while "force" or "power" in the abstract may be incapable of scientific explanation or definition, the main function of both the Engineer and the Psychologist is the study of the *specific* forces of Nature with a view to their more effective direction for the use and convenience of man. Although these may only be capable of definition in terms of their observed results, we nevertheless arrive at definitions of specific forces which *thenceforth exist as conceptual entities independently of the perceived results.*

3. In the domain of mechanics, both statical and dynamical, engineers are constantly dealing with "forces" as conceptual entities, and while these may be *expressed* in terms of their normal results under certain elementary conditions, that is, in relations of mass, weight, and velocity, as perceptual elements, such results are potential rather than actual, conceptual rather than perceptual. In the domain of psychology, it appears no less essential to realise that the data obtained by perceptual observation must be correlated as *concepts*, and for the purposes of correlation, these concepts must be treated as entities of a non-material nature. While the "Realist" or "Materialist" may disregard the universe of concepts, and the "Idealist" may disregard the universe of percepts, the engineer and the psychologist alike must regard the former as an indispensable intermediary between the universe of percepts (as man's

[1] Excerpt from Charter of The Instn. of Civil Engineers.

environment) on the one hand, and the universe of volitional activities (as man's control of his environment) on the other. In other words, man's functions may be divided into *observing*, *thinking*, and *acting*, but these are sequential functions, and man's efficiency or utility as man, is dependent upon the maintenance of the sequence, and the due co-ordination of the three distinct functions.

4. In the domain of psychology, the same conditions prevail, but with the important difference that among the perceptual observations constituting the primary data from which the conceptual entities are to be formed, are specific and purposeful activities indistinguishable, at first sight, from the volitional activities which constitute the final stage of the sequence of human functions. It appears to me that modern psychologists have, almost without exception, fallen into the error of confusing the purposeful activities which precede the formation of concepts with those which follow as results of this *human* function. As Dr. Drever points out,[1] the study of Instinct necessarily involves a certain amount of introspection, but he very properly suggests that the actual process is really "retrospective," otherwise memory of subjective experience, and the error in question seems to arise from the failure to isolate the earlier from the later experience. I shall, therefore, urge that the interpretation of instinct-experience in terms of conscious experience is a fundamental error fatal to a proper understanding of either.

5. Although I do not propose, in this article, to deal with any other phase of Instinct than that usually discussed as alone representing instinct, that is to say, the *physical* activities, marked by their complexity in the case of animals (particularly insects) and by their relative simplicity in the case of infants, it is necessary to explain my reference to forces as a factor in Instinct. Human instinct, when considered apart from animal instinct, as I suggest it must be, will reveal, not only subjective forces in opposition to, or in conflict with, objective forces, but competing subjective forces in conflict one with another. To study these would, however, involve a discussion beyond the scope of an article, and I shall confine myself to the more elementary forces implied by the terms "dispositions," "tendencies" and the like as applied to specific physical activities, including, in the case of animals, complex sequences of such activities. Even here we encounter *different* forces acting on an organism so as to either negative each other or to produce an activity directly representative of neither one nor the

[1] "Instinct in Man," p. 56.

other. We may observe living organisms, as well as inanimate objects, in a state of (external) rest, and yet deduce (from other observations) the conclusion that this result is due to various forces the nature of which is capable of definition. Similarly, as we can deduce from the specific movements of an inanimate body the nature of a multiplicity of forces producing this result (or "resultant" as it is generally called) so, in the case of living organisms we can analyse an observed activity into its component casual "forces," and, by so doing, distinguish objective or external forces from subjective or internal forces. In my view, the term Instinct implies a particular class of subjective "forces," and the object in view is to distinguish the characteristics of this class of subjective forces from those of other subjective forces. Although my method is derived from my experience as an engineer, I venture to suggest that it is the only method by which the psychologist can arrive at a conclusion consistent with the phenomena upon which he must rely for his "perceptual data." Provisionally and subject to further definition of the terms employed, I distinguish Instinct as *subjective "forces" operating independently of conscious volition.* Thus, if "conation" may be assumed to represent "*un*conscious volition," this term might be properly applied to the element of force in Instinct, but I am quite alive to the fact that the term "conation" is not normally so interpreted, and that, on the contrary, both conation and instincts are definitely associated with consciousness by most psychologists.

6. It is now necessary to abstract a summary of the definitions of Instinct presented by the five experts at the Symposium of July, 1910. This I undertake with considerable diffidence, because the condensation of views expressed at such length is not an easy task, and, when accomplished, inevitably lays one open to a charge of misrepresentation. *Dr. Myers* practically defines Instinct in terms of Intelligence, claiming the former as the subjective, and the latter as the objective, aspects of the same thing, but without transcribing the whole paper it is impossible to reproduce his definition of that which is common to both. I shall not, however, err very greatly if I define this common element as the capacity for modification (assumed as "improvement") of activities as a result of experience. On the question of consciousness, it is a very remarkable fact that Dr. Myers, while claiming that a newly-hatched chick has "a vague awareness of the result of its first peck *before* it has actually performed the action,"[1] subsequently notes that "Man

[1] *British Journal of Psychology*, Vol. III, p. 211.

is never aware that he is acting instinctively."[1] Surely if a chick is capable of even a vague kind of foresight, a man must be capable of recognizing the origin of any specific activity. For myself, I accept the second statement as correct, but consider that it affords the strongest evidence that the first assumption is inaccurate. I consider that if there is any personal consciousness associated with instinctive activity, it arises as a *result* of the activity, and neither as a cause, nor as a concomitant of it.

Prof. Lloyd Morgan[2] considers the term "instinctive" as adjectival of behaviour, but disposes of "reflexes or modes of instinctive behaviour which have no concomitants in consciousness," not by denying their existence, but by claiming that if there be such "they do not concern the psychologist" and may be "handed over to the biologist." This expedient of relegating to others questions of which a solution is not immediately discoverable is hardly worthy of so eminent an authority as Prof. Lloyd Morgan undoubtedly is. He has, however, dealt similarly with another point equally vital to the understanding of Instinct. In *Animal Behaviour*[3] (p. 294), referring to his use of the term "biological and psychological ends," he explains that he does not use the word "ends" as implying "foresight and contrivance on the part af a rational being," the question of an underlying cause behind natural phenomena being in the domain of metaphysics and one upon which Science has no right to express an opinion. Yet he defines "instinctive behaviour as comprising those complex groups of co-ordinated acts which are, on their first occurrence, independent of experience, which tend to the well-being of the individual and the preservation of the race" (and) "which are similarly performed by all the members of the same . . . group of animals. . . ."[4] Surely, co-ordinated acts tending to a specific result and shared by all members of a group of organisms, logically and scientifically imply a common origin characterized by some form of intelligence endued with foresight akin to that possessed by man. I agree that science is unable to proceed beyond this at present, but, for

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[1] *Ibid.*, p. 215. Dr. Myers, to whom this communication has been submitted by the author, explains that in the remark quoted he does not mean that man is never aware of an instinctive act, but that he cannot distinguish whether he is acting by instinct or by intelligence. This explanation does not, however, vitiate the deduction drawn from the remark. The functioning of "reflective consciousness" or "retrospection" does enable man to recognise the origin of an act, although he may not be aware of this origin at the time he performs the act, but the point involved here is rather the foresight of the result of an act, which is possible to man, and, in the author's opinion, impossible to any animal, least of all to a newly-hatched chick.—P.G.

[2] *B. J. P.*, Vol. III, p. 225.

[3] Edward Arnold, 1920.

[4] *Ibid.*, p. 71.

myself at any rate, I refuse to accept any limit to the range of scientific *enquiry* based on scientific evidence.

Prof. H. Wildon Carr, following M. Bergson, frankly adopts the philosophical point of view and employs the arguments of metaphysics. Differing from Dr. Myers, he defines Instinct as "cognition but cognition of a different kind to that of intelligence." He adds, "instinct may become conscious, and to the extent that it is able to do so, it becomes intelligent."[1] Were it possible here to enlarge upon the nature of the "external intelligence" which I shall claim as inherent in Instinct, I should adopt many of the arguments used by Prof. Carr, but, limiting myself to the physical phase of Instinct, this is unnecessary, and would be in effect, inappropriate. The purpose or "end" of all instinctive physical activities is clearly *species-preservation*, and the data available in this connection alone are quite inadequate to indicate the nature of the "external intelligence," at any rate in scientific terms. It is quite otherwise, however, when we study the higher phases of Instinct peculiar to man.

Professor Stout is clearly satisfied with the general view that instincts are derived by hereditary transmission from parents, but, like others who share this view, makes no attempt to explain the process of transmission. Abstracting three main questions which emerge from the preceding papers, his replies may be quoted as statements, viz.:—

1. That Instinct *is* essentially a form of biological adoption, and, in this respect, on a level with Reflex Action.

2. That Intelligent Action is *not* also instinctively determined (which does not, however, appear to imply that it is not instinctively *originated*).

3. That every Instinctive Action, as such, *is* also determined by Intelligence. (This intelligence is, however, innate in the organism).

Professor William McDougall[2] defines instinctive action as implying the existence, in the creature's innate constitution, of (1) a specialised perceptual disposition, (2) a specific conative tendency, and (3) some co-ordinated system of motor channels, the three elements together forming a functional unit which is transmitted from generation to generation, and constitutes a whole to which alone the term "instinct" can be properly applied. This definition is essentially that which he has elaborated in his "Social Psychology," but in that work the

[1] *Ibid.*, p. 285.
[2] *Ibid.*, p. 264.

"conative tendency" is described in terms of emotion rather than as impulse alone, and, as such, becomes the only constant element in Instinct. Hence, Prof. McDougall identifies specific instinct tendencies by the *emotion* which, he contends, is characteristic of each, and (whether intentionally or otherwise is not clear) makes it impossible to define the instincts of animals except in terms of *human* emotions. If, however, we regard his definition as applicable to *human* instinct, his complaint at the "vanishingly small part" assigned by his colleagues "to instinct in the development and operations of the human mind"[1] is fully justified. While I cannot here elaborate my thesis as regards the *mental instincts peculiar to man*, I may at least remark that the psychological definition given by Prof. McDougall is as appropriate to them as the physiological definition given by Prof. Lloyd Morgan is to the physical instincts which operate in animals and in man, distinguished only by their "epicritic" nature in the former case, and by their "protopathic" nature in the latter case.

Dr. Myers,[2] in replying to the other papers, emphasizes a point previously mentioned parenthetically in connection with Reflex Action alone, namely that "its central consciousness, if present . . . is . . . never communicable to the Ego of the organism."[3] He now adds, "Intuition is only the intelligent consciousness at work without involving the consciousness of the Ego," and again, "Intelligent activity need not involve the consciousness of the Ego."[4] In these expressions he represents almost exactly that which I have implied by the term "external intelligence," that is to say, an intelligent consciousness which is universal in, and peculiar to, a group or species of living organisms, rather than to an individual or personal "mind." I should, indeed, be quite prepared to substitute the term "impersonal" for the term "external" as qualifying the intelligence peculiar to Instinct. In his concluding paragraph, Dr. Myers recognises that which he terms "instinct-intelligence" as a *psychological function of a physiological mechanism*, and as regards the physical phase of instinct alone, I accept this definition, with the reservation that *the psychological function is impersonal*, and the physiological mechanism is personal to the organism as such. In the case of mental instincts, I should, however, insist that both function and

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[1] *Ibid.*, p. 259.
[2] *Ibid.*, p. 212.
[3] *Ibid.*, p. 268.
[4] *Ibid.*, p. 269.

mechanism are psychological, the former again impersonal and latter again personal.

7. If we now, as far as possible, eliminate divergencies of opinion from the five papers under review, we shall, I think, arrive at a general definition of instinctive activities, which will be accepted by all the experts in question, even if the nature of instinct itself is still open to discussion. *Instinctive activities appear to be accepted as those which, either isolated or in co-ordinated sequence, are characterised by intelligence not acquired by the personal experience of the organism concerned.* This leaves the question of origin open, but even if we adopt Prof. Lloyd Morgan's attitude and assume this question as beyond the range of Science, we are left with another question not so easily evaded, and that is, what is implied by the term "Intelligence"? We have, in the five papers before us, lengthy discussions of this in its relation to Instinct, but no clear and concise definition of Intelligence *per se*. I therefore venture to suggest such a definition as follows:—*Activities, whether isolated or co-ordinated in a specific sequence, are proportionately "intelligent" according as they manifest a pre-conceived purpose.* I am here challenging the use of the term "ends" by Prof. Lloyd Morgan so far as this term is synonymous with "purposes," but leaving it open to him to claim that they are not synonymous. In ordinary scientific discourse they are generally given as alternatives, and thus assumed to be synonymous, but I admit the possibility of conceptually isolating "fortuitous coincidence" from "pre-conceived purpose," and I leave it to Prof. Lloyd Morgan to conclude, if he thinks fit, that even a universal coincidence *may be* fortuitous, and not, therefore, evidence of a pre-conceived purpose. If, however, such a conclusion is "scientific," I must abandon any claim to scientific ability or scientific method. To my own mind, the *universal result* of instinctive activities, namely, the preservation of species (and of unit-life so far as this is contributory thereto) implies a *pre-conceived purpose*, and I think I shall have general support in postulating that this is the essential characteristic of Intelligence associated with "activities."

8. The acceptance of this postulate enables us to arrive at a more comprehensive definition of Instinct, but in substituting an explanatory alternative for the word "Intelligence," we may, I think, reasonably and justifiably adapt a more concise term than "pre-conceived purpose," namely, "foresight." This being conceded, we have *instinctive activities as those characterized by foresight not personal to the organism concerned*, and we thus establish the appropriateness of the term

"external" as applied to the intelligence inherent in Instinct. The term intelligence must therefore be qualified, (1) as "external" or "impersonal" in connection with Instinct, and (2) as "personal" and "acquired from experience" in every other case. It will then be seen that personal intelligence is related to impersonal intelligence exactly as Dr. Myers claims Intelligence to be related to Instinct, that is, the former is the subjective, and the latter the objective, aspect of the same thing. But in both cases the "thing" is a conceptual, and not a material, entity, and cannot be located in terms of space. In terms of time, however, it is logically imperative to accept the impersonal intelligence as existing prior to personal intelligence, and were we to pursue the study into the domains of philosophy or of metaphysics, it would become clear that *personal intelligence originates in impersonal intelligence.* This, however, is a consideration beyond the scope of this article.

9. Let me now deal with the views expressed in regard to the relation of Reflex Action to instinctive activities in general. Opinions differ as to this; mainly owing to the fact that the distinguishing characteristics of Reflex Action are variously defined. By some they are distinguished by "fixity," by others, as being essentially unconscious, but Dr. Myers appears to question whether either of these characteristics is essential. The most interesting question which arises in connection with Reflex Action is whether the term includes the internal functional processes connected with breathing, blood circulation and assimilation of food. These processes may be distinguished from external muscular reflexes in that they cannot be *objectively* observed, and while they are also normally "unconscious" in the sense of subjective consciousness, they produce a vague undefined consciousness of "pain" when their normal operation is impeded or disarranged, whereas external or muscular reflexes are rarely, if ever, impeded to the same extent. But these differences are not of sufficient importance to require a distinct term for each class. In terms of "purpose," it seems to me unnecessary to describe Reflex Actions, whether internal or external, as other than sub-divisions of instinctive activities. On the other hand, the great multiplicity and complexity of the internal processes which never become specifically conscious, seems to justify my claim for the recognition of reflexes as true instinctive activities (or processes), all being equally characterized by an intelligent purpose, and varied only to suit conditions of structure and function peculiar to each species of which the unit organism is utterly ignorant. Dr. Rivers, in "*Instinct and the Unconscious,*" seems to suggest that instinctive

activities might be distinguished from (humanly) intelligent activities by applying the term "protopathic" to the former, and the term "epicritic" to the latter, but I suggest that these terms would be more appropriately used, the first, to describe external reflexes and the instinctive external activities of infants, and the second to describe all other instinctive activities both internal and external, of animals and of man. Such distinctions, however, are only sub-divisions of Instinctive Activities, as such.

10. It will be observed that, in my analysis (or rather synthesis) of the papers read at the Symposium of 1910, I have followed Prof. Lloyd Morgan to the extent of treating the concept "Instinct" as a quality of "behaviour" or "co-ordinated sequences of activities," and consequently, I have arrived at no definition of Instinct considered as a conceptual entity or as a class of phenomena the nature of which is manifested in activities of a particular type. It is clear that Instinct implies a substantive concept definable in other than adjectival terms, and that even the term "activities" as applied to living organisms must, in scientific discourse, be held to cover static conditions such as "sleep" or quiescence. It seems impossible to restrict the operation of Instinct to external movements seeing that, in a living organism, internal processes or activities are incessantly in operation even during sleep and external quiescence. We may, nevertheless, presume that in using the term "behaviour" rather than the term "activities," Prof. Lloyd Morgan includes states of external quiescence as well as actual movements, so that we shall only part company with him so far as we consider Instinct as a conceptual entity or as a specific class of phenomena definable in substantive terms. Here, perhaps, the engineer has more useful data for establishing a definition of Isntinct than the psychologist pure and simple, for he constantly employs "machines" as "inanimate organisms" to accomplish specific and complex activities or "processes." Yet, as "inanimate organisms" alone, machines are useless, and, to render them useful, it is necessary to provide some appropriate form of *motive-power*. Now I ask Prof. Lloyd Morgan whether he can regard instinctive "behaviour"[1] (either active or passive) in any other way than as a specific activity or state induced or *caused* by some form of motive-power? I am aware of the fact that he does not accept *force in the abstract* as a scientific concept, but if some mischievous student of his threw a snowball and hit him in the face, I fancy that, his annoyance

[1] *B. J. P.*, Vol. XII, p. 29.

passed, he would be quite prepared to scientifically discuss the *specific force* exerted in throwing the snowball. Even if he refused to discuss originative metaphysical "causes," he would be compelled to admit that the unpleasant experience in question was originated or caused by a specific exercise of force on the part of the student, and so far as this force could be defined or measured it would become an essentially scientific "concept" although *expressed in perceptual terms.*

11. So far, therefore, as the physical phase of Instinct can be defined, I contend that it constitutes a substantive concept or conceptual entity, and so far as it can then be associated universally with a particular class of organisms, it becomes essentially a form of motive-power peculiar to, and therefore characteristic of, that class of organisms. I return now to my illustration of a machine as an "inanimate organism" activated by some particular form of power. Even if I am unable to discover the exact nature of the motive-power activating a particular machine, I can, by various methods, ascertain the amount of the power exerted, and decide whether this is constant, variable or intermittent. But, having got thus far, I have discovered something else of peculiar importance in view of our definition of Instinct. I realize that, *in the machine*, the motive-power is being intelligently applied, that is, it has been made a *purposive* power. Here is no abstract force but a specific application of force, and in the "specific application" I recognise Intelligence as implying both purpose and foresight, that is, *a purpose pre-conceived.* Now I contend that human thought cannot conceive of an organism originating either itself or a purpose as determinate of its structure and functions. A living organism, no less than an inanimate machine must be designed by a pre-existing intelligence, capable of pre-conceiving a purpose as the determinate of the design, and activated by specific forces also appropriate to the purpose. To consider "mechanism" as a law or principle sufficient to account for any machine or "organism" revealing purposeful activities or movements is as absurd as to conceive a machine as constructed for no specific purpose whatever. *To the engineer the term "mechanism" implies a means to an end, and the end or purpose must be conceived before the mechanism can be designed or made.* It would appear that, to the psychologist, a living "mechanism," even if it does not exist of its own volition, at any rate, evolves its own structure and functions, and that the results observed are fortuitous "ends," devoid of pre-conceived "purpose." Is it not obvious that "finalism" is a necessary precedent and concomitant of "mechanism" and that the existence of a

"physiological mechanism" requires the *prior* exercise of a "psychological function," which must, therefore, take place externally to the organism?

12. I now ask psychologists to accept from those whose normal function is the "directing of the great forces of Nature for the use and convenience of Man" a law of Nature which is impressed on the engineer at every turn, namely, that no "mechanism," however ingenious or complex its structure and functions, can accomplish a useful and pre-conceived purpose unless activated by some motive-power, *external to itself*, and derived from Nature, *not* created by man. Such, indeed, is my conception of the nature of Instinct. Here I stop, because my argument is limited to the domain of physical phenomena open to perceptual observation. If, however, the argument were extended to the domain of psychological phenomena as manifest only to conceptual observation, we should not only realize the existence and specific character of mental instincts, but also the Natural Laws and Forces prevailing in a psychological universe. More particularly, we should realize, on the one hand, the present inferiority of the Intelligence of Man as compared with the "Intelligence" of Instinct, and, on the other hand, the fact that it is human intelligence alone which reveals a true evolutionary development, progressively enabling it *to displace Instinct by Conscious Volition.* A thesis of this character, however belongs rather to the domain of Philosophy than to that of Psychology.

THE ROOTS OF SOCIAL DESIRE.

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IT is too often forgotten, though it is often enough stated, that the troubles of the world are not to be eased by the making of programmes. Somewhere deep in the heart of man there are elements which elude them all, and troubles keep troubling on like the bad penny that always turned up again.

These elusive elements are no doubt grounded very firmly in the instincts, as psychologists tell us, but as they emerge to the surface of our social life they become more than merely instinctive. They become expressed in the familiar language of "rights" and "goods" and "values," the kind of language which always hints at far more than it is able to say.

In this paper we shall be concerned to discuss what it is that these phrases of our everyday social life really do mean. What, for example, does the term "right" really stand for? What are the ethical principles lying at the roots of social unrest, and against what violation of these principles is it that earnest social reformers, whatever their creed, are really struggling? Or, in the final issue, what are the vital good things for which man ought to strive, and against the denial of which to any human being, he ought to fight?

In this we are faced with the most ultimate question in all ethics, and it may seem very like impertinence that we should set out, within the limits of a short article, to answer it. We cannot, of course, do so satisfactorily and with full reasonableness. We can only in somewhat dogmatic fashion state what seems to us, as the result of considered thought, the main trend of man's fundamental moral desires, and attempt to show that serious social reforms as well as the frequent bitter sense of injustice in the oppressed, are implicitly, if seldom explicitly, the expression of hidden desires and aspirations which social circumstance has disguised and sometimes repressed altogether.

It is important to remember that "rights" in the end mean *moral* rights, and "wrongs" mean *moral* wrongs. In practice

these phrases are very often merely the symbols of a vague emotional state, of a feeling accompanying the instinct of self-assertion, or the unpleasant feeling when what we think to be our prerogative to self-assertion is denied. For example, the state of the labourer's mind when he talks of his "right" to a living wage is a strongly emotional, rather than a clearly intellectual one. Nevertheless the "right" to a living wage is one which can be explained in terms of ethics as well as of psychology. There is presupposed in the subjective state a definite, if obscurely understood, attitude to an objective moral value, and it is the nature of this moral value which we shall here explore. So, again, he who violently objects to the appropriation of his property not only feels that with the property a part of himself has gone (hence his misery), but also takes up a definite, though perhaps unconscious attitude to property which is based on some notion, however obscure, of ethical goods and rights. Again, to the sincere socialist such questions as nationalisation, trusts, competition, unemployment, the relation of capital and labour, are deeply ethical questions, though how much so, he often does not realise. He does not realise it because of the enormous stress which has been laid upon economics in the education of the proletariat, and in reformative schemes. The pendulum, however, already swings, and the Welsh miners who have received their schooling in economics, now turn to the deeper things of philosophy. It is, notwithstanding the importance of economic reform, untrue to say that such reform goes to the root of social evil; socialism, whether sound as a policy or not, stands, if one is to judge from Labour's official programme, for certain quite definite moral principles. Liberalism, again, has as its watch-word, liberty; and of all conceptions deeply moral, surely liberty is one of the most fundamental and the most difficult. What we have to do in this paper is to go a little deeper, and ask: "What are the true rights involved in all these polemical questions?"

It is, in the first place, because society has so long accepted as just and inevitable a purely negative idea of morality that it has tolerated easily so many social evils. It may be because the Church of England has been wedded to class interests that it has so consistently preached to the poor content with their lot, or it may be that a false notion of Christianity made it possible to discover conveniently in existing social conditions the ideal field for the moral struggle. Whether this be so or not, certain it is that a false and negative notion of goodness and man's function lies at the root of an easy optimism. It is the notion that moral life is merely a struggle and nothing more, that the more difficulties with which we are faced and which we can

overcome the better it is for our souls. So they say, passing in unconscious mockery from their Master's words to a very parody of them, not "Blessed be ye poor," but "Blessed be poverty!" So again we hear the even ludicrous plaint (made from the very highest quarters) that if we destroy the institutions of charity the Christian virtue of generosity will surely die. For example, if we abolish privately-supported hospitals we shall be taking away from those who have given their money freely to such objects an important part of their right to be virtuous. It seems that not merely must we overcome evil by good, but that goodness is the overcoming of evil, and unless evil previously exists we cannot be good. Sometimes the argument takes a somewhat different form and is reinforced by the smattering of 19th century evolutionism. Take as an instance the question of competition, which is praised because it produces the "survival of the fittest." "Survival of the fittest" may be a biological, but it is not a moral, truth, scarcely even is it a moral half-truth. First, because struggle is not the essence of goodness, and second, because success may mean the destruction, body and soul, of a fellow moral being. There may, in competition, emerge out of the struggle moral grit, determination, and value, as there emerge heroism and nobility out of physical warfare. Only it is these emergents which are moral, and not the thing which is their occasion. As the biological battle is a-moral, so, even although it may in the end stimulate what is good in man, is the competitive struggle at least non-moral. If it can destroy moral tissue, it is more, it is immoral.

Such are some of the false ethical reasons which have been used continually in defence of existing social facts. Can we, in our turn, produce better moral reasons for a condemnation of these facts? For if the nature of goodness is not something bigger indeed than a mere struggle, a negative subduing of evil, if it does not mean the joyous expression of something positive, then the whole brave attempt to alleviate social burdens is but a defeating of its own purposes. The morality of clerical conservatism, in the bad sense, is no morality at all: it is in spite of carefully preserved obstacles, and not because of them, that the good will can triumph: and though something is gained in the overcoming of stumbling blocks, much more may be lost, and that bloom of the moral life which is the symbol of its serenity, shattered and destroyed.

Now as to the ethics of the positive social reformer. Are the conceptions on which he bases his proposals equally negative? At first it may seem so. Often he is an "anti": he works to *prevent* things happening. Yet that is of course only half the

story, though how much the reformer may realise the other half is a matter of his philosophic insight. The one half of the story is that the social reformer desires liberty, and the other, the obscurer half, is that he desires liberty for something other than liberty. Fence as we may, we cannot escape the conclusion that liberty is, in the end, the partly explicit, partly implicit, ideal of all creeds and of all parties, that liberty, of some sort and for some sorts of persons (an important provision) would be acclaimed alike by Tory, Communist, Liberal or Labourist. Further, in every case it would be the means to a more ultimate ideal still. To a discussion of what this more ultimate and less clearly conceived ideal ought to be we shall return shortly. In the meantime let us observe, by the examination of two concrete cases, the case of the "capitalist" and the "labour man," not only what a fundamental thing this feeling for liberty may be, but the ethical suppositions of that feeling.

If we judge the so-called "capitalists" by their own frequently reported words, we may classify their most typical view of liberty as "laissez-faire." As a political cry there may be no longer any virtue in the phrase "laissez-faire," but as a practical creed it certainly lives for the individual. In spite of our more developed habits of social thinking, the pure individualist not only exists but flourishes. "Laissez-faire," "let things be," "let me be," "let me do as I please with my own property and be confounded to the rest." That is, without much caricature, what liberty means to the individualist.

In this claim for freedom there is something vitally moral, often inextricably tangled, no doubt, with much that is selfish, brutal, and immoral. Yet "let me do as I like, as I see fit" is simply a claim on the part of the human being to work out his own life in his own way. Taking that for what it is worth it is a most reasonable claim. "Let me be a responsible being and not a puppet in a machine-made world" is a rightful protest against something which is abhorrent to the soul. If socialism in any sense meant the attempt to organise what is vital in human personality, then truly it would be a sadly mistaken creed, for the best that is in life is just that which can never be forced into a machine-made world mould. The unit of a community is a human personality, living alone in a multitude, thinking thoughts that are uniquely its own, with hopes, desires, tendencies, that belong only to itself. Personality can never be reduced to terms of a social whole. The "social organism" metaphor may be useful, but the human *person*, who inevitably escapes organisation, is to the human community *more* than are the hand and the lungs to the organism.

That is the truth of individualism of which some "capitalists" (at least) are the exponents; and the freedom for which it stands, is, as we have said, a vitally moral thing, for morality without freedom, the possibility of self-realisation without space to work in, is a complete chimera. The self of the property owner is expressed in the various activities accompanying his use of property; he justly enough feels that he has some "right" to express himself, and he is morally indignant when there arises any menace to the freedom of that expression. His joy is in some measure the joy of a creator, he realises himself in it, and that self-realisation may be a very deeply moral right, a realisation of goodness. Or, if we take the word "property" in a narrower sense, we find T. H. Green referring to the same kind of thing when he speaks of property as "a sort of extension of the man's organs, the constant apparatus through which he gives reality to his ideas and wishes." Property, e.g., a man's clothes or his home, is the medium through which is expressed personality: the expression of this personality has its own moral value (of which we shall presently speak), and to deny the liberty for this expression is rightly felt to be a denial of something fundamentally moral. Once again, if socialism, the bugbear of the "capitalist," really meant what the capitalist thinks it does, namely, the denial of the right to express individuality, personality, character, through possessions, then so far socialism would be hopelessly in the wrong.

The Socialist answer to this possible criticism is, of course, that, far from denying the right of the individual to express himself through property, socialism itself stands to defend that very right: it only seeks to limit "rights" in so far as they are violations of the rights of others. Capitalism, individualism, means "freedom for me," labouristic socialism means protection of liberty for the many. Once again, we take from their own programmes and their own speeches the kind of apology which labour actually does make.

The socialist, then, stands for liberty of the many. Socialism, being a protest against things as they are, has a deep anguish in its plea for this moral liberty. The "capitalist" is afraid of having that taken away from him which he has so long in security possessed, but the labourer is out for something good of which he seeks after by a kind of heart's yearning, but which he has never fully known. Lazarus gazes from afar at the rich man's feast. Sometimes he is wistful, sometimes envious. In the depths of his being burns darkly but surely a great moral passion. His thoughts and words, crudely mis-shapen often, are but symbols of far deeper things.

That burning desire at the roots of the sense of social injustice is the desire to be recognised as a human being, to be accorded the dignity which is due to a man. It is largely because wealth in the past has stood for dignity, and because without sufficient of this world's goods dignity is impossible, that wealth has been mistaken for the good itself. Wealth may stand for beauty, self-expression, power; and so, scarcely realising that this symbolism is not an identity, men have sought the means and confused it with the end. And the end itself? Kant has summed up the supreme imperative of morality very simply when he says: "So act as to treat humanity, whether in thine own person or in that of any other, in every case as an end, never as means only." It is because of the violation of this simple imperative that the hearts of the oppressed have burned within them. They, as human beings, with the rights of human beings to that dignity which is the birth-right of a moral nature, have been *used* by the plutocrat as a mere means to his particular ends. "Respect for men, as men"; this is the true basis of democracy, and it is because it conceives that such a respect is utterly negated in industrial conditions, that socialism urges political plans to secure a greater freedom (and therefore a greater *moral* freedom) for all men. "Wage slavery" is more than a metaphor, and its significance is more than physical. It is not simply that men and women are compelled to toil all day and every day in physical weariness and under conditions that make the physical life a burden, and it is not simply that they do this in order to gain the mere means of bodily sustenance, if even that. It is something very much more, something far more vital. It is that such physical slavery literally means *moral* slavery. In denying to a man the right to physical life, industrialism denies him even the human right to be *good*.

This is our central point, and we must in a moment examine the nature of this goodness. But in the meantime we shall be met with the old fallacy which earlier we tried to combat; namely, that goodness is something which, far from being extinguished by adverse conditions, is thereby brought out more clearly, and shines with brighter radiance. It will be contended that the miseries of a fireless grate which drive a man to the warmth and glow of a public-house, will bring out the real strength of his character, that we may do even the most monotonous work faithfully, and so on. With such superficial cant we have no space to deal. Certainly moral quality can be brought out by difficulty, and it is the supreme triumph of man's spirit that he may be joyous even in face of hunger, disease, and death. The bravest spirits have been among the poor. But,

once more, if life is not something more than a mere struggle, if it is not a discovery within ourselves and others, and within nature, of something larger and greater and more splendid than ourselves, then indeed would life be not worth the living. It is because industrialism can make the virtues so negative, because it can prevent men from making each for himself the great discovery of goodness, from setting out upon the great adventures of truth and beauty, that it is as literally possible for it to kill the soul as to starve the body. We do not say that it *must* kill the soul—there are too many of the noblest among the oppressed to make that true—but we do say that it can, and that it must, almost inevitably, stunt moral growth as it stunts physical stature. That is a very strong thing to say: it is a statement which orthodox Christianity (which, however, is by no means necessarily the teaching of Christ) could not accept, since it believes in a soul-autonomy quite independent of external conditions. We believe it to be true, nevertheless. The lives and interests of Demos, the faces of the football crowd, the total absence of sensitiveness to beauty, of eagerness for truth, of delight in the values of the world for their own sake—all these are witnesses to its truth. That these qualities are lacking elsewhere than in Demos is no proof of its falsity. The causes of the cancer come from plutocracy, and on plutocracy the deadly effects wreak their moral vengeance.

It is not in fact probable that the evils of industrialism as it has been, will be denied by the thoughtful. What will be most certainly denied is that conditions of industrialism do truly prevent a man from being *good*. In taste, our opponents may urge, the worker is sadly lacking; in intellectual curiosity he may be deficient (and this despite the high qualities of both in the educated minority of the workers). But these, they urge, are surely not *goodness*: goodness is a thing of the soul apart from and above the rest.

This essentially stupid distinction between the soul and the mind, between moral value and intellectual value, a distinction which has little authority, even in the philosopher Aristotle, is not a fabrication which we have erected in order to knock it down. In the church it remains, as pushing and perverse as ever, and it is only an extreme way of stating what nearly all of us in our everyday notions of morality assume as a matter of course. "Goodness" to many of us means, not the broad deep rich development of every part of a man's nature so that together they go to make up harmonious unified personality; it means rather the conformity to certain rules, codes and conventions, the system of which is regarded as "morality." Goodness means doing

your duty in a way which can be well defined; it means the refraining from thoughts, words and deeds which society believes to be wrong. Thus, we say, a man may be good, but very dull; dutiful, but stupid; moral enough, but entirely lacking in taste.

If we are willing on reflection to accept such a notion of goodness, then it will indeed seem true to say that goodness is apart from and above other activities and functions, and that the industrial slave may be just as good as if he were something else than a slave. But surely these conventional ideas are all wrong? Surely the living man is not to be cut into sections after this fashion, the good being the quality of one section, whilst the æsthetic and intellectual faculties each ripen or wither in their place and way, independent of all the rest? That is, we believe, what our common speech and ideas often come to, but we must supplement them by a much rounder, fuller conception of what the thing we are wont to call moral goodness is. Moral goodness, once more, is not a mere struggle, it is not a mere fulfilment of codes or an avoidance of the vices. Morality is not something apart from the pursuits and interests of life, and it is not even something which is above, which is higher than these things. Morality is something which is of the very texture of life itself, which expresses itself in and through all sides of a man's nature. The ideally good man at any time is he in whom the delight in beauty, the eagerness for a full truth, the love of his fellow-creatures and the world of nature, are so blended as to form the richest harmonious unity. Morality, as the Greeks knew, is the resultant of the relations in a complex, not the property of a *part* of a soul. The man without taste for beautiful things is, so far, a less *good* man: he who has no eagerness to explore the the rich storehouse of the world is, not merely intellectually, but so far *morally*, deficient. Morality is nothing at all if it is not based in a magnificent, progressive discovery in the realms of truth and beauty as well as of action. The everyday life of practice which we call good must be lit and inspired by that discovery. True morality must mean, not conformity or negative struggle, but a unique thing for each individual: it must be a moulding upon the materials which fate gives to us of a personality which has been heated in contact with vital things. As the artist can fuse his materials into unity because of his communion with an ideal beauty, so must the moral life be created a sane, whole, beautiful thing by the individual's communion with the infinitely wonderful, infinitely various, reality that lies beyond him. The world, we say, is one: convention, law, harmony, reveal themselves wherever we lift the cosmic curtains. By the inspiration of this wider harmony only can the

microscosm of the moral life (which is *all* of human life) be rendered harmonious.

To return to our previous point. It is because industrial conditions interfere with the liberty of the individual to make this discovery which must inspire life, that they are to be condemned. Once more they make the good life in this sense impossible. The conditions of monotony, of continual noise, of long days with brief hectic relaxations and reactions, are such as make it impossible for all but the exceptional to live any spiritual life at all. We do not of course argue that the only avenue by which the wonder of things may be approached is the avenue of the mind. Livingstones and Shackletons have discovered the values of the universe through action, as their works well show. But it is true that the main release of man from the bonds of himself, which is the beginning of morality, is to be found through education in science, philosophy, and the arts. Education may not necessitate goodness, particularly if either is interpreted in a narrow sense; but without it, full positive goodness is impossible. Education in its turn involves the necessity for much leisure, and it is in the denial of the right to such leisure that industrialism has sinned so grievously. On the other hand, it is true that if education requires leisure, so to use leisure we need education.

It is in this way that we must interpret the cry of the worker for liberty. Whatever the thousands, who, chained to hated tasks for their lives' duration, may clamour for in fact, it is the deep craving for liberty, and liberty to discover for themselves the fair things of life, that is at the root of all. That is surely the right of man, and it is a right which goes deeper than even Kant's conception. Human beings are to be treated as ends in themselves—but why? Because they alone of all known creatures have this gift of knowledge of good and evil, of values in themselves. We may go a step further, in order to refute the idea that it is knowledge merely that is the end of all things. Life contains more than knowledge, it contains doing, and most important of all, it contains life's supreme form of doing, namely, *making*.

We call it life's supreme form of doing, because in whatever direction we turn, the desire seems to reveal itself to express ourselves in some concrete way, to create something which is peculiarly ours, to fashion something which shall be a more or less lasting symbol of ourselves. We saw how it affected the capitalist and property owner. The childish joy in making something is very real, and one of the simplest examples. The impulse of the artist to make is the most complex that we know.

But between come an infinitude of ways and varieties, ranging from the desire to make "a good impression" to the desire to make a complete good life. In this latter sense we may truly speak of making as a real creation.

The desire to create varies in strength and quality, but its realisation is the ultimate end, whether covered or hid, of the moral life. It is because they feel their life energy to be dissipated and wasted that the thinkers among those who labour desire to externalise their souls in some better and more lasting way. They desire to explore new realities in the world of knowledge, action, or art, first, because they feel that there is value and delight there which is now hidden from them. But second, after that enjoyment which comes with the glimpse of further reality, there follows the desire to reconstruct life in the light of this wider knowledge, to recreate it, as the knowledge of universal principles widens, in the form of a wider unity.

As industrial conditions are, the good life, which is the personal, creative life, must of necessity be lived in leisure, apart from the life of daily labour. In the mechanical and monotonous manipulation of a machine there is little or no scope for the realisation and re-creation of value, though in the higher branches of any skilled work no doubt individuality may be expressed. The true life of the man is lived (if monotony has not already destroyed the possibility of it) away from the factory, the mill, the mine. But there is another class of work, the craftsman's work, where something is made, where a new thing, with the impress of personality upon it, comes into the world. It is in the increase of craftsmanship to its maximum, and the decrease of mechanical labour, that the greater moralisation of industry is possible. Craftsmanship takes and makes character, though how, we cannot tell. Love goes into the very stuff of the metal, or clay, or leather, and in its outflowing the desire to express and to create is often in large measure satisfied. There is value to be discovered in making, and the soul delights in it. It is true of course, that to each man is a particular taste and function, that one will delight in the shaping of clean wood, another in the hammering and punching of bronze, a third in the moulding of clay. Therein lies the importance of vocational tests—and it is vocation which is the key-word of all goodness. Goodness is the very thing which is realised in the delight of doing these individual things well, and it is a goodness which may well satisfy and content the soul, rendering it a sweeter, lovelier, nobler thing thereby.

Not all industry can be reduced to craftsmanship, it is true. Monotony there must and will always be. Only it should be

remarked that monotony is reducible, that if demand were less artificial and more natural, machinery could be used for its original purpose, to lessen toil, that the burden of life might be lighter. Where monotony is inevitable there is most need of all for leisure, leisure to know truth and beauty, to explore the mysteries of life, which it is the privilege of man to explore, and to turn back to everyday tasks and to human relationships strengthened and refreshed and purified. To know the immeasurable delights of reality in all its aspects, to express and to create ever in fresh, new, vital ways, this is to be *good*, the function of man, and his right. An industrial system which by its conditions denies to men wholly the liberty to experience the wider reality, or to express that experience, in a word, to create, is so far an evil thing. It steals from men their souls' desire; it cheats them of a man's last right, the right to be good in his own way, having had that vision of truth that can only be his.

THE LOCALISATION OF SOUNDS IN SPACE.

(Remarks to Dr. H. J. Watt's paper on "Music as Pure Psychics" in No. 3 of *Psyche*.)

By Rudolf Allers (Vienna).

IN his interesting paper Dr. Watt contends that "simple experiments show that our power of localising sounds in space is comparatively poor. We make the grossest errors . . . The acts by which we place sounds in space . . . are merely inferred from slight musical differences" (p. 211). I should like to present to the readers of *Psyche* some remarks on this matter to which Dr. Bénesi and I devoted an experimental study on normal and pathological subjects.

It is unquestionably true that spatial localisation of sounds is much less exact than our visual, tactile, or kinæsthetic localisation. It is indeed highly probable that the localising of sounds in space is greatly influenced by our knowledge of visual space or—as in the case of the blind-born—of kinæsthetic space. But it seems to me doubtful whether these associations are competent to explain the primary fact of acoustic spatiality—the fact, that is to say, that sounds are liable to be spatially localised at all. I cannot imagine how a sensation not endowed with a primary spatial character could gain such a character through a mere process of association alone. However often a gustatory or olfactory sensation might occur simultaneously with a visual one, as, for example, in the arrangement used for producing the so-called conditioned reflexes, we would never ascribe to such sensations the position in space occupied by the object seen, nor, indeed, any position in the space about us. The establishing of such a connection is impossible, because the sensations of taste and smell lack this particular immanent character which would enable them to be localised in space.[1] We must therefore ascribe to sounds an inherent relation to space, however indistinct and undifferentiated it may be.

[1] Their being "somewhere" at all—on the tongue, *e.g.*, is irrelevant to the problem.

The only question is as to which of the qualities transmitted through the ear to consciousness is responsible for this spatial character of sound. If I understand Dr. Watt's argument, he thinks that differences of pitch, of intensity, of "colouring" ought to be considered as the objective correlatives of spatial localisation of sounds. Although the experimental evidence upon which Dr. Watt is relying is unknown to me, my own experience indicates that this theory does not actually explain the facts of localisation. In normal dichotic hearing differences of intensity, of pitch, of the moment at which the one or the other ear becomes excited by the sound-waves play no doubt an important part; but they do not suffice to explain some facts of localising.

"Differences in the musical aspects" may mean differences between the sensations arising from one ear and the other. That this "moment" cannot constitute the essential mechanism of sound-localisation, is demonstrated by the fact of a purely monotic power of localisation, not only in normal subjects after closing one ear completely and in pathological cases of destruction of the inner ear on one side, but also in a subject observed by us who suffered from congenital aphonia of one ear. In this case the argument which could be raised against the other cases, namely, that the monotic faculty of localisation could be explained as a residuum of the dichotic functions, which were previously in existence, has no weight whatever, and it must therefore be concluded that monotic hearing alone enables us to localise sounds. The laws of this localisation are somewhat different from those regulating the dichotic function, but nevertheless we have a true and primary monotic faculty of sound-localisation. All theories, therefore, laying stress on differences of intensity, or of phase or of time in the stimulation of both ears can only explain the differences existing between dichotic and monotic localisation, but never the fundamental fact of localisation itself.

If we understand by the "differences of musical aspects" variations of quality in the stimulus itself, as I think Dr. Watt does, we should expect that sounds could only be localised in cases allowing such differences to appear; under the usual conditions, indeed, this is realised. But one may exclude nearly all such differences experimentally by making use of very short stimuli just of threshold-intensity. The threshold of audibility assumes, as is well known, different values for different positions of the source of sound; in monotic perception it has a minimum value if the sound comes directly to the ear, the source being placed in the binaural axis on the side of the hearing ear, and its greatest, if the source is placed exactly on the opposite side. To obtain

threshold-stimuli we used the phonometer of Zoth, a small iron ball falling [by interrupting the current of an electro-magnet] on a piece of steel. The sound is very short and has no appreciable musical quality. Nor does it seem to undergo any marked change of pitch within the limits of our experiences. Threshold-stimuli are necessarily all of the same subjective intensity, viz., "just above zero." If such stimuli give rise to a localisation, differences of intensity must be excluded from the hypothetical conditions of localisation. We have found that diminishing the intensity of the sound to the threshold-value does not markedly impair the objective results of localisation, though the subjective assurance is not so great as with more intense sounds. It seems to me, that the "musical aspects" did not show any notable differences in this experiment, the intensity being always exactly the same and the pitch—if pitch may be ascribed to such a noise at all—being invariable, at least so far as the subject's perception was concerned.

If neither differences between the excitement of both ears nor differences in intensity, etc., between the stimuli can explain the fact of localisation, how then is it to be explained? One possibility was discussed by Preyer, and his theory was taken up later by Alt and Reinhold. They not only thought it possible, but believed they had proved experimentally that the "sense of direction," the perception of the position of the sound-producing instrument in relation to the subject's body, was a function of the semicircular canals in the inner ear. An investigation of their arguments and a repetition of their experiments, however, showed that the former were by no means conclusive and the latter not so uniform as they had thought. This theory also must consequently be rejected. I confess that I cannot advance any new theory explaining both the older and newer facts.

Perhaps we may assume that sounds possess in themselves a spatial character as do visual or tactile sensations. We would have then a primitive acoustical space. The fact that it is not differentiated in the same way and to the same extent as visual space would not matter, because the same may be said of kinæsthetic or tactile space. The problem would be the same as with other spaces; a nativistic theory would be possible as well as an empirical one, and both would have certain arguments to produce in their favour. But whether we ought to decide for one or the other cannot be discussed in this short paper. The experimental data referred to above are fully given and discussed in a study published in collaboration with Dr. Bénesi in the *Zeitschr. f. d. ges. Neurologie u. Psychiatrie*, 1922.

ABSTRACT OF THE PROCEEDINGS OF THE PSYCHOLOGICAL SECTION OF THE BRITISH ASSOCIATION

AT HULL, SEPTEMBER, 1922.

Sept. 7th, 10 a.m.—Dr. C. S. MYERS—"Industrial Psychology and the Efficiency Engineer."—His paper was a sequel to one given at Barcelona by Dr. F. B. Galbraith. In that paper Dr. Galbraith, following the example of F. W. Taylor, the acknowledged father of the modern Efficiency Engineer, had addressed the Industrial Psychologist from the standpoint of the Efficiency Engineer. It was here proposed to reverse matters by addressing the Efficiency Engineer from the standpoint of the Industrial Psychologist. The workman dreaded above all things the prospect of doing as he was told from morning till night. Yet such a prescribed routine seemed to be the upshot of the Efficiency Engineer's work. Furthermore, for many investigations the confidence and co-operation of the worker was not only desirable, but indispensable. Practices such as "secret timing" tended to antagonise the worker. The method of Galbraith and Taylor was to analyse the operations, carried out by the worker, into a series of isolated movements, and then of "assembling" such of these isolated movements as seemed individually most efficient, although selected from different workers, into a new series that was considered to approximate to the "one best way." But such a method was radically wrong, both on psychological and physiological grounds. Not only was there no one best way, but such a heterogeneous collection of singly excellent parts need not prove an efficient whole. To proceed thus was to ignore both physical and mental individuality, and exemplified the excessively mechanical standpoint of the Efficiency Engineer. Another example of this standpoint was the construction of ingenious wage-schemes. Moreover, he could not assent to the advice offered to the Industrial Psychologist by Dr. Galbraith, namely, to limit himself to the measurement and description of the facts without touching the ethical and economic aspects of the industrial operations in question. How could such a policy be pursued in the case of "factory worries"? Yet these admittedly affected output. A case in point was that of some chocolate workers who, on the conclusion of an investigation, had thanked the investigators, not so much because their output had increased by 30 per cent., but because, as a result of the improvements effected by the investigation, they went home less exhausted by the day's work.

The question of Tests for Vocational Selection was important. Such tests must be applied by trained psychologists, and not by laymen. For the data afforded by the tests was useful only when correctly interpreted; and interpretation was always necessary. Yet the Efficiency Engineer advocated the carrying out of the Vocational Tests by laymen, such as the managers. Co-operation was desirable between the Industrial Psychologist and the Efficiency Engineer. But this partnership must not be one-sided.

In the following discussion Mr. H. Binns pointed out that quality of output had so far been neglected by investigators, in comparison with quantity of output. In such an industry as that of wool, however, quality was the more important consideration.

Mr. J. Seebohm Rowntree, jun., suggested that the psychologist was not sufficiently consulted beforehand, being frequently presented with the accomplished fact. Consequently his help could not be as beneficial as it might otherwise have been.

Dr. G. H. Miles confirmed this with a case from his own experience. Thirty journeys a day were necessitated in one workshop on account of the absence of a water-tap.

Prof. T. H. Pear considered that as yet psychology was too immature for the excessive departmentalisation advocated by the Efficiency Engineer. Moreover, the psychologist's problems must not be stated for him by laymen.

11 a.m.—Dr. G. H. MILES—"Applications of Psychology to Breakage Problems in Industry."—Industry, and therefore the community, suffered enormously from the type of loss that was ascribed to such vague and misleading causes as carelessness and accident. Among such losses breakages formed an important class. To investigate the problems involved therein was not easy, inasmuch as the parties concerned in a breakage were hardly in a fit frame of mind for impartial inquiry. Still, certain factors were distinguishable. There was the varying natures of individuals, some persons, for instance, being naturally clumsy. There was the question of the duration and quality of the training. Fatigue he did not consider a potent cause of breakages, nor did Vernon. In an investigation in which he himself had investigated breakages of glass and china in the catering trade, it had been found that the psychical state of the workers was of paramount importance. This was conditioned by such factors as the speed of work, worry and irritation, the occurrence of "rush" and "slack" periods, the mode of transmitting orders, the temperature, and the ventilation. To reduce the number of breakages it was necessary to improve the worker's state of mind. This had been accomplished by improving the conditions of work, by introducing various devices—*e.g.*, an impersonal method of transmitting orders—and by a more even distribution of the day's work. Not only did the workers themselves testify to the improvement of their mental state thus effected, but the decrease in the number of "direct" breakages—*i.e.*, breakages during handling, as distinct from breakages during transit ("indirect" breakages)—gave an objective corroboration of this testimony. At the beginning of the investigation the "direct" breakages were 2·4 per 1,000, at the end they were 1·7. Moreover, in some cases the reduction of breakages was as high as 70 per cent. The results of such an investigation tended to discredit such explanations as those connoted by "accident" and "carelessness."

11.30 a.m.—Mr. J. SEEBOHM ROWNTREE, jun.—"Practical Applications of Vocational Tests."—Vocational Selection was as yet in the experimental stage, and far from unerring. Its findings were disturbed by such factors as the health and the home conditions of the worker, the type of supervisor, and the incentives to work. It aimed at the increase of the worker's happiness and efficiency by endeavouring to allocate him to the type of work for which he was best fitted. His mode of procedure was to determine the applicant's mental and motor ratio. The mental tests used were (1) Substitution Tests (Memory), (2) Cancellation Tests (Perceptual Acuity), and (3) the Analysis of Geometrical Figures (General Intelligence). To determine motor capacity he tested the accuracy of control, the flexibility and the strength of the relevant muscles. The applicant was then allocated to the type of work, the mental and motor ratio suitable to which most nearly approximated to his own as determined. Monotony, distress, and loss of interest were largely attributable to the unsuitability of the worker to his work.

12 a.m.—Mr. ERIC FARMER—"The Value of Output Curves as Measures of Fatigue."—Psychologists should not use output curves as measures of fatigue; they should rather regard certain of their characteristics as symptoms of fatigue. Output curves had a diagnostic rather than a quantitative aspect, so far as fatigue was concerned. Furthermore, in order to render commensurable output curves which referred to different kinds of work, it was advisable to plot time against unit of output, instead of output against unit of time.

2.30 p.m.—Dr. C. H. NORTHCOTT—"Instincts and Society."—Instincts had been given undue importance as social factors. McDougall himself tacitly admitted this by the difference between the treatment of the problem of society in his

" Social Psychology " and that of his " Group Mind." The former work stressed the individual with his unchangeable and innate tendencies or instincts; the latter stressed society, describing it as a system with a life and tendencies of its own. In the latter work McDougall had missed a unique opportunity of answering Principal Barker's criticism, " How do instincts issue into social life?" There was considerable divergence as to the number of the instincts, the which suggested that there was a similar divergence as to the nature of instincts. Were instincts hypotheses or data? In either case there was little clearness or agreement. McDougall emphasised the uniformity of instinctive behaviour. But could the instinct of flight, for example, cover such different responses as running away, concealment, immobility, and collapse? Were instincts to be defined in terms of stimulus and response—*i.e.*, in neuro-muscular terms—or as class-concepts? The so-called Instinct of Workmanship could hardly be put under the former heading. Moreover, did one run away on perceiving a dark, looming object, or on experiencing an idea of a danger?

To turn to the problems of society, instincts could be considered only as one set of the factors which conditioned social life. Society was a system of relationships. These relationships were standardised as habits. Tradition preserved and imitation transmitted them. Customs and institutions were ways in which society shaped the innate tendencies of the individual. The Gregarious Instinct had been postulated in order to explain the genesis of society, but it could explain only the coming together of individuals, not the development of society. Instincts could not explain the difference between modern and primitive society. The agents of the development of society were institutions and customs. If anything was the true antithesis of instinct, it was the institution.

3.30 p.m.—Miss MAY COLLINS—" Experiments on Colour-Blindness."—She had examined seven colour-defectives by four types of tests—(1) Stilling's Tests, (2) Holmgren's Wools, (3) Colour-naming, and (4) Colour-mixing. The data thus obtained was recited.

In the discussion on her paper, Dr. C. S. Myers said that her investigation tended to show the existence of transitional cases of colour-deficiency, and also to show the importance of the colour-nomenclature that the examinee has acquired and employs.

4 p.m.—Dr. D. WYNN JONES—" The Technique of Group Testing."—In the Intelligence Tests in present use, speed and accuracy alone seemed to be considered. He thought that they should not be the sole criteria of intelligence. The tests, recently devised by Professor Thomson, seemed to indicate that Professor Thomson did not consider speed as important as it was customary to consider it. Professor Spearman, when asked whether speed was an accurate criterion of intelligence, had replied: " Test it and see." Certain investigations conducted by Miss Kay seemed to imply that speed was not an impeccable criterion of intelligence. He thought that a capacity for criticism was an indication of intelligence, and a capacity for criticism was not necessarily correlated with high speed.

It was a popular opinion that emotionality and intelligence are antithetical. This view was questionable. Such evidence as was available—*e.g.*, that due to the investigations of Miss Waller, Dr. Prideaux, and others—tended to show that emotionality and intelligence were intimately associated.

In the resulting discussion, Mr. C. Burt remarked that speed was sometimes highly important in intelligence-testing, and sometimes not. He considered that " general emotionality " was positively correlated with intelligence. He noted that in some cases the removal of repressions appeared to have improved a person's intelligence.

Friday, Sept. 8, 10 a.m.—Mr. H. BINNS—" Industry and Education."—Lord Burnham had pointed out that our system of education and our national life were not co-ordinated, and that the prevailing type of education was too literary and clerical, an inadequate contributor to the increase of the world's output. According

to tests devised and applied by himself (Mr. Binns), pupils of the Manual Schools on the whole ranked higher than pupils of the Elementary and Secondary Schools. These tests were directed in particular to the testing of manipulative ability and of what might be termed "sensory appreciativeness." Both of these faculties were highly important in industry. Training in the manipulation of wood, metal, cardboard, fabrics, etc., tended to develop both.

Another defect of the educational system was that it neglected the formation of character. Industry did not want mere intellectuals, it wanted character as well as intellect. Education should endeavour to meet these demands.

According to one of his tests (the arranging of flannel shirtings in order of value, the instructions being that those shirtings which contained more wool were the more valuable, while those which contained more cotton were the less valuable, the test being performed by both business experts and by children), there seemed to be two distinct orders of judgment—the natural or non-professional, and the professional or trade types of judgment.

11 a.m.—Joint Discussion with the Educational Section on "Psycho-analysis and the School."

Dr. C. W. Kimmins: Teachers in the past had neglected psychology, but had now exchanged that attitude for one of hopeful attention. There was a danger of expecting too much from psychology, and excessive expectations led to excessive disappointment and reaction. Dreams afforded an excellent means for ascertaining the mental make-up of the child. The formation of psychological clinics, where abnormal cases might be sent for diagnosis and treatment, was highly desirable.

Dr. Crichton Miller: The child could educate itself only in a suitable environment. The teacher formed an important part of the child's environment, and in order to be efficient, the teacher needed self-knowledge and straight thinking on a new and higher level than ever before. He must realise what spiritual open-air meant—that is, he must have not merely an objective but also a subjective appreciation of the analytical standpoint. Only then could he be the sympathetic interpreter to the child-mind of the unescapable demands of life upon each of us. Then he would not impose himself or his ends or his values upon the child, nor would he repel the child by parading the status of the adult. He would rather assist the child to develop and to express his (the child's) own self.

Teachers might be divided into three groups, so far as their attitude towards analysis was concerned. The initiated he warned never to begin an analysis which could not be completed. The bewildered he urged to be of good cheer, to learn, to work, and to wait. The complacent and hostile he challenged. So long as the schools continued to produce neurotics, so long would he and those like him never cease from interfering. There were two kinds of undesirable discipline—the discipline of the rope's end and the training-ship, and that of the St. Ursulas' by the Sea, where it was proudly claimed that the question of discipline did not arise.

Dr. E. A. Hamilton-Pearson gave cases illustrative of the need for, and the value of, analysis, and urged study and research.

Dr. R. G. Gordon contributed a paper on "The Difficult and Delinquent Child." The problem of this type of child was an important one. There was a lamentable lack of data bearing on the children of the richer classes. Such data was necessary for comparative purposes. In its absence it was difficult to distinguish what was due to inheritance and what to upbringing, and therefore to know what treatment could prevent. Yet the problem must be dealt with, both for the sake of such children themselves, and for the sake of the other children. For difficult and delinquent children had often a bad influence on others. For instance, such children sometimes endeavoured to establish an ascendancy over their companions by accumulating and retailing undesirable information. Cure or improvement was quite feasible with proper treatment, based on a knowledge of the child's physical and mental condition and history.

Professor T. H. Pear: It was important to determine what was the difference between complexes and sentiments. Could sentiments, to focus the problem, be analysed like complexes? If they could, then there was a possibility of great harm being done. He doubted whether sentiments were as accessible to analysis as complexes; sentiments seemed to be stable and "tidy," complexes unstable and "untidy." It was interesting to inquire whether one could be a lady and wise at the same time.

2.30 p.m.—Mr. W. WHATELY SMITH—"Entia Praeter Necessitatem . . ."—The present untidiness of psychology was to be deprecated. There was a multiplication of concepts and hypotheses, and but little scrutiny or co-ordination thereof. The time had come when psychologists should carefully "pick over" the concepts of their science, and determine what were the fundamental concepts. All the concepts of Physics could be stated in terms of the concepts of mass, space, and time. Psychologists should aim at a similar ideal. All their concepts, whether fundamental or derivative, should be rigorously defined, and, if possible, a suitable notation should be devised. The development of a suitable notation had enabled mathematics to make great advances.

He had endeavoured to make a tentative towards the end which he advocated. Two fundamental concepts seemed necessary at the very least, namely, consciousness and what is present thereto (presentations). There was a possibility of a third, affective tone; he was inclined to consider this as a causal agent. It was desirable to remember that in selecting and defining fundamental concepts, the absolute standpoint was necessary. From this standpoint many of the concepts and distinctions that were convenient from the practical standpoint were no longer tenable.

In the discussion, Dr. C. S. Myers spoke of the desirability and even possibility of an international congress for the purpose of defining and standardising psychological concepts. He remarked that Mr. Whately Smith's paper reminded him of the discussion of the distinction of things mental into the "act" and the "content," a discussion carried on some years ago, chiefly by Austrian psychologists.

3.15 p.m.—Professor T. H. PEAR—"The Acquisition of Skill in Reference to Training in Industry."—A five-fold classification of the subject was convenient, into (1) what to teach, (2) how to teach, (3) who should teach, (4) what should be the relation between training and education, and (5) how to learn. There were three sorts of training—watching someone performing the operation to be learnt, being criticised, and being re-trained. The learner may be the sort of person who plunges "in medias res," thus learning by his own experience, or he may be the sort of person who is more chary of himself, who thinks before acting, and who prefers to learn by the experience of others. Teachers also vary. They may be introverts and interested only in their own development; they may be hostile, or they may be lazy. Again, their vocabulary may be inadequate. And it is to be noted that language in general is poor in terms descriptive of kinæsthesis.

The kind of imagery used by the learner was important. The method that was the best for teaching the motile was not necessarily or probably the best for the visile. There was a valuable possibility of the mass-teaching of visiles by means of the slowed-up cinematograph and of the "growing diagram." It was not desirable that the teacher himself should slow up his own action in order to permit the learner to observe the mode of performance, for in so doing the teacher frequently modified his action.

The plateaux of a learning-curve had been discovered, not in sending, but in receiving telegraphic messages. The reason for this was that in the reception of telegraphic messages there was a more marked completion of each stage of the process of integrating simpler units into more complex units, each sharp rise in the curve being due to the completion of a level of integrations. It might be profitable to teach the more complex units at the outset, instead of beginning with the simpler units.

In the discussion it was pointed out that a very relevant question was—Who should be taught?

4 p.m.—Dr. P. SARGENT FLORENCE—"Spoilt Work in Industry."—Spoilt work caused industry very serious losses, yet the subject had been very little investigated. He had investigated spoilt work in certain engineering processes, observing 13 women for 15 days. Two factors had been investigated, the number of hours worked and the type of work. With regard to the former, it had been found that the amount of spoilt work was relatively high at the beginning of the day's work, decreasing towards the middle of the morning, and increasing again towards the mid-day halt. A similar account held good of the afternoon's work. In regard to the type of work, it was to be noted that the greater the accuracy required by the operation, the greater the amount of spoilt work. Furthermore, there were considerable differences between the workers themselves in their methods and capacities.

In the discussion, Dr. C. S. Myers said that Dr. Miles, in his investigation of breakages, had noticed a similar relation between the amount of spoilt work and the hours of work, and that Mr. Farmer had obtained a similar result when investigating the process of "buffing." It seemed that the expenditure of energy increased towards the end of the day.

Monday, Sept. 11, 10 a.m.—Mr. C. BURT—"Moral Imbecility."—Administrative machinery missed one class of subnormal children, namely, the "moral imbecile." For, in order to come within the scope of the Mental Deficiency Act, the moral imbecile must be mentally defective, and "mental" was often used in the narrower sense of "intellectual." In dealing with this problem it was convenient to use a dual classification—*i.e.*, to speak of the Intellectual Aspect (using "intellectual" as the adjective of "intelligence"), and of the Temperamental or Emotional Aspect. Now, it was more accurate to use the term "temperamental" than that of "moral," in reference to the "moral imbecile"; for morality was a comparatively relative term. It seemed legitimate to introduce a concept of General Emotionality to rank with that of General Intelligence.

In determining Temperamental Imbecility or Deficiency, two considerations must be borne in mind—firstly, that the temperamental deficiency must be general and not special, *i.e.*, not confined to any one direction, *e.g.*, that of sex; and secondly, that only the extreme cases of temperamental deficiency, amounting to about 1 or 2 per cent. of the population, must be classed as temperamental imbeciles. The mode of determination advisable was by a Temperamental Age Scheme of Tests comparable to the Mental (*i.e.*, Intellectual) Age Scheme now in use. The work of Kimmins and Freud had shown the possibility of such an Age Scheme.

Dr. G. A. Auden supported Mr. Burt's thesis. He showed the unsatisfactoriness of the legal definition of "moral imbecility" or of "moral insanity," to use the original term employed by Dr. Pritchard in 1836. He agreed that "temperamental" was an apter term than "moral," and that cases of "moral imbecility" were cases of temperamental defect. He gave instances, pointing in particular to the slow return to normality in cases of Encephalitis Lethargica. For a long time children recovering from this disease were veritable imps of darkness. It was a mistake to send such children to institutions for the "mentally defective."

10.45 a.m.—Dr. W. BROWN—"Auto-Suggestion and the Will."—Will was a popular term, unsuitable for scientific use. Volition was a more accurate term. He proposed to criticise Coué's and Baudouin's use of the term "will," with special reference to Coué's Law of Reversed Effort. This law stated that where the will and the imagination are in conflict, the imagination always wins. (It was to be noted that here the imagination was defined as the unconscious or subconscious.) An example was the unavailing effort that one sometimes experienced in trying to recall a name, ending in the confession, "I would like to, but I cannot." Such a conflict, however, was between wish and imagination rather than

between will (volition) and imagination. For volition implied belief as well as wish. When there was a conflict between one suggestion and another, the suggestion that was reinforced by emotion would conquer the one not so reinforced. That was the explanation of the above law. For example, in a person who wished to cross the street, but could not, the idea of not crossing was reinforced by the emotion of fear.

Baudouin had said that the notion of re-educating the will had been abandoned. But his method of treatment by suggestion was precisely such a process of re-education. Probably Baudouin's statement was due to his erroneous use of the term "will." The man of strong will was not the fussy and excitable man, but the man of calm certainty, the man who, when he made up his mind, was calmly convinced that he would carry out his resolution. Now, treatment by suggestion was directed towards producing a condition of calm conviction in the patient. His own method was to induce a state of complete mental and physical relaxation in the patient, and then to give the required suggestions to him in a tranquil and assured manner, at fairly frequent intervals for an hour. That constituted a single sitting. Analysis was not essential to cure, and the Freudian doctrine of transference was not an adequate explanation of cure by suggestion. Repetition of formulæ was unnecessary; moreover, the periods of suggestion should be brief. It was possible that the complete relaxation itself had a beneficial effect. At any rate, he had been able to reduce the blood-pressure by this means when other means had failed.

In the discussion, Dr. C. S. Myers said that it would have been as well to have criticised Coué's definition of imagination as well as that of will. For Coué had defined imagination in a sense that was quite unacceptable to psychologists. Dr. Myers deprecated the inadequacy of the explanations advanced by many exponents of the "New Psychology." They would perhaps be better advised to state their facts without trying to explain them.

In his reply Dr. Brown, whilst agreeing that Coué's definition of imagination was unfortunate, yet considered that a sympathetic interpretation of Coué's writings sufficiently elucidated his meaning.

11.30 a.m.—Presidential Address by Dr. C. S. MYERS, F.R.S., on "The Influence of the late W. H. R. Rivers on the Development of Psychology in Great Britain."

[Printed in this number of *Psyche*.—ED.]

2.30 p.m.—Dr. C. W. KIMMINS—"The Sense of Visual Humour in Children."—McDougall had recently propounded a new theory of laughter, namely, that laughter was an instinctive activity and was accompanied by a characteristic emotion, the purpose served by this instinct being the defence of the organism against the pain due to induced sympathy. But this theory might be criticised on the score that it did not cover the whole of the ground. Less than 40 per cent. of the cases of mirth-provoking matter which he (Dr. Kimmins) had investigated could be claimed as belonging to the class of misfortunes. McDougall's theory was important in that it divorced the smile from the laugh. According to McDougall, the smile was the normal reaction to pleasure. But the fact that the smile first appeared in the infant at the end of the third week, and the laugh only at the end of the third month, was a slender basis for this divorce.

Turning to his (Dr. Kimmins') investigation of visual humour in children, based on a large number of essays, written by London children and descriptive of the funniest sights which they had ever seen, it was to be remarked that great changes occurred at the period of most rapid growth—that is, at twelve years of age in boys, and somewhat earlier in girls.

Domestic animals held a prominent position in the kingdom of the child. At nine years of age 4 per cent. of the boys and 9 per cent. of the girls gave a domestic animal incident as the funniest sight which they had ever seen. The

"Invisible Friend" was similarly important. The Superiority Feeling, again, was prominent in visual humour. It was in evidence at the age of nine, but most so at twelve years of age. One manifestation of it was the extravagant or euphuistic language that was used about this age. The Inferiority Feeling was less obvious. The mother rarely provoked laughter, the father more frequently, but most of all the uncle and the aunt. Children often recorded dreams as the funniest sight, and perhaps there was some special parallelism between the dream mechanism of different ages and the humour of the same periods. Environment had much influence on the kind of joke that was successful. For instance, Guy Fawkes caused more mirth in the East than in the West End of London. Absent-mindedness appeared as a subject for laughter about the age of fourteen.

Tuesday, Sept. 12, 10 a.m.—Joint Discussion with the Anthropological Section on "Mental Characters and Race."

Professor J. L. Myres: The question was—How far was it possible to correlate mental characteristics with physical? It was a popular belief, not without some justification, that mental qualities are inherited, that some mental characteristics are racial, and that certain mental qualities are correlated with physical characteristics. There was some evidence from the breeding of animals. For instance, in the Rhodesian lion-hound, efficiency was apparently correlated with the possession of a large and heavy mane. But one was often mistaken in judging people by their looks. One might posit as bases of correlation (1) psychical reactions to stimuli, and (2) social reactions—*e.g.*, the sense of right and wrong.

Dr. C. S. Myers: There was no answer as yet to the question—What is a mental character? No units of any kind were known. Moreover, mental characters did not exist in isolation. Some work was being done on this question in regard to guinea-pigs. It might be expected that external reactions and internal secretions would form the most suitable bases for correlation. With regard to judging from facial appearance, it was certainly true that one could infer that a man was angry in that way, although it would be difficult to explain how it was done. Undoubtedly there were cases in which appearances were misleading, but explanation of these cases was often possible. For instance, deficient boys and girls might be handsome. Probably they had been given a false start which had impaired their mental but not their physical growth. Repression, conflict, and differences in self-control accounted for many such cases.

Different countries developed different types. The Americans had developed a type. Yorkshire and Wales were musical. Moreover, a mental characteristic might appear and disappear. Thus in Elizabethan days England was pre-eminent in music. But very little of these phenomena was understood.

Acuity Tests showed little difference between peoples. He thought that there was a considerable possibility of the inheritance of acquired characters.

Dr. A. C. Haddon considered that there was a need for an Observational Psychology paying special attention to social reactions.

Mr. C. Burt: Mental as well as physical characteristics were inherited, the correlation being about ·5 for both. But this figure referred only to the intellectual aspect (*i.e.*, the aspect of intelligence), and probably attention would be more profitably directed to the temperamental aspect. There was much data for the intelligence, and, according to this, racial like sexual differences appeared to be small, individual differences being so great as to swamp racial and sexual differences. Marked types of humanity had been discovered by the Intelligence Tests —*e.g.*, Binet's Subjective and Objective Types. There was some evidence that the former type was dark and short, the latter fair and tall. The internal secretions were undoubtedly a promising field for inquiry.

Mr. E. N. Fallaize pointed to the testimony given by the observers of different centuries as to the existence of national types. Their agreement with contemporary observers indicated the persistence of national types.

Dr. F. C. Shrubsall described the possibilities of investigating the problem that were afforded by the cosmopolitan London schools.

Another contributor considered that environment, in particular—occupation, played a great part in developing mental characteristics. A pastoral people were very different from an agricultural people.

2.15 p.m.—Dr. F. C. SHRUBSALL—"What is Mental Deficiency?"—In dealing with mental defectives a middle course had to be steered between the policy of segregation and that of maintaining the liberty of the subject. One could not class as mentally defective those who were deficient in only one respect. Thus a certain boy who was hopelessly incapable of the literary subjects taught at school had yet ability enough to work as a gasfitter in his spare time, and to employ his father and another man. There were various ways of diagnosing mental deficiency. It might be correlated with cerebral defects, inherited or resulting from disease, or it might be correlated with physiological defects—*e.g.*, in the internal secretions. Language afforded an indication of mental deficiency, and as such it was used in the various Intelligence Tests in vogue. But Mental Tests must be used with caution in determining mental deficiency. For one of the pre-suppositions of Mental Tests was that the examinee would do his or her best, and there was no certainty of that in the case of the mentally defective. Moreover, it was advisable to work slowly through the tests, even if the specified time-limits were thereby exceeded. Finally, a diagnosis must be based on all the circumstances of the case, on its history, its conditions, and so forth.

3 p.m.—Dr. G. A. AUDEN—"Types of Mental Deficiency."—It was proposed to deal with the biological conception of mental deficiency rather than with individual types. Mental deficiency might be regarded as the possession of a sub-normal capacity for adaptation to environment. From this point of view it seemed likely that there would continue to be mental defectives so long as the environment continued to change. Two main types of mental deficiency might be distinguished—firstly, the Evolutive Type, consisting of those who failed to reach the present level demanded by society, although quite equal to past levels; and secondly, the Devolutive Type, consisting of those who through disease or accident were depressed below the present level of adaptation demanded by society. In the Evolutive Type there was a high correlation between parent and offspring, whilst the Devolutives were at most congenital. The former type could be trained to perform useful, although not high-grade, work, but with the latter very little could be done.

Unification of the Lunacy and Mental Deficiency Acts was highly desirable.

In the discussion on the papers of Drs. Shrubsall and Auden, Mr. C. Burt agreed that tests have only a limited value. Nevertheless, they provide a useful standard of uniformity, and they enable cases to be selected for special investigation. He regretted that the educationally deficient and the socially defective were described by the same name. He considered that a dual classification into intelligence and temperament or emotionality was convenient. Under the heading of intelligence would come, first the intellectually backward, and then the intellectually deficient. Under the heading of temperament would come, first the temperamentally unstable, and then the temperamentally deficient.

H. E. O. J.

FOREIGN INTELLIGENCE.

[*We are glad to be able to announce that we have made arrangements whereby regular instalments of notes from foreign sources will be contributed by competent authorities abroad. These will include comments on the progress of psychology in the countries concerned, together with abstracts of such periodicals and books of importance as are not readily accessible to English readers. The latter will be found in our "Survey of Current Literature." We publish a further instalment of General Foreign Intelligence below, and propose, in the near future, to extend our arrangements to cover all centres of psychological importance.*]

UNITED STATES OF AMERICA.

Since writing my last notes for *Psyche*, there has not been a great deal of activity in psychological circles except to carry out the projects already begun. Perhaps if we could sift out the psychological enterprises in neighbouring fields, such as education, industry, medicine, etc., we should have an accumulated mass of psychological work before us, but it is always difficult to draw the line in such sifting. Certainly the gigantic Boston meeting of the National Education Association in July was not without its significance for psychology. Indeed, many of the papers dealt with distinctly mental phenomena. The Year-Book of the Association, recently published, is devoted completely to the discussion of mental tests in its various aspects.

As a result of the publicity attracted by the applied fields, psychology has become more and more of a popular subject for discussion, particularly since the spread of psycho-analysis. The science is not helped thereby, for aided by the newspapers and even periodicals, every charlatan or quack who chooses may find a ready market for his infantile wares, whether in book form or in platform drivel. The game played by the "lecturers" belongs to the confidence type that must have been practised from time immemorial upon the "blissful." Starting their campaign in a small town or suburb, these "scientists" announce as a decoy a course of free lectures in which they profess their art to make their auditors healthy, happy and wise.

It is during these lectures that they reveal that the real course, comprising ten or a dozen lectures, would cost 25dol. When graduated from the smaller town, they come, armed with newspaper clippings, to the city. The science that these psychologists pour forth is concerned with *deep breathing, being in tune with the world and its vibrations*, etc., etc.

Publications.

The publications in legitimate psychology seem to be invariably of an experimental nature and in the form of monographs, among the recent collections of published researches being the *University of Iowa Studies in Psychology* (ed. by Prof. C. E. Seashore), the fifth bulky volume of the *Harvard Psychological Studies* (ed. by Prof. N. S. Langfeld), and the third volume of *Wellesley Studies in Psychology* (ed. by Prof. E. A. McGamble). *The Elements of Scientific Psychology* is the name of a new text-book by Knight Dunlap, of John Hopkins University. Prof. Dunlap's earlier text-book "A System of Psychology," appeared a decade ago. The only theoretical work announced to appear shortly is *Behaviorism and Psychology*, by A. A. Roback, in which is given a survey of the many different types of behaviorism with their antecedents, followed by an examination of the principles of behaviorism, its applications to law, medicine, education, art, religion, and the social sciences, etc. McCall's *How to Measure in Education*, recently published, might at one time have come under the rubric of psychology, but not now. *The Archives of Occupational Therapy* is the name of a new periodical which in part is devoted to an applied field of psychology.

Among the new appointments are the promotions of H. L. Hollingworth to a professorship at Barnard College, of Wm. A. McCall and L. S. Hollingworth to associate professorships, and of A. T. Poffenberger to an assistant professorship. At Harvard University L. T. Troland was appointed assistant professor. The various fields of psychology at Harvard will be covered by the following instructors: Profs. McDougall (*General, Social, History*), McFie Campbell (*Psycho-pathology*), Dearborn (*Educational*), Boring (*Systematic and Experimental*), Langfeld (*Experimental and Æsthetics*), Starch (*Business and Educational*), Craig (*Animal*), Troland (*Physiological*), Wells (*Psychopathology*), Pratt (*Experimental*), Roback (*General*). Psychical research will be taken up by Murphy. Dr. Terman, of Stanford University, has been appointed head of the department of psychology at that institution, taking the place of Prof. Frank Angell, who has retired.

Laboratories.

The Psychological Laboratory at Wellesley College reports several investigations that have been carried on during the last academic year. Prof. Gamble has been working on the problem of determining correlations between the results of different systems of group intelligence tests as used with the Wellesley students, and between the results of the several tests and academic averages. Prof. Rackmick's experiments include:

(*a*) The comparison of results of the localization of sound by the method of visualization and the method of pointing. (The latter method not only is the more accurate as evidenced by the data obtained so far, but it requires a higher degree of attention).

(*b*) The phenomenon of double localization. (In localizing sound in which a click and a buzz were simultaneously given from the same apparatus binaurally, there was almost always a double localization, e.g., the click was localized nearer the head and higher. Intensity, though a controlling factor, was not a regular determinant, and there was a tendency to localize on the right side of the subject).

(*c*) Individual differences were noted to be marked in experiments on mutilated texts. These texts were presented according to a uniform plan for the purpose of noting the reading consciousness under various conditions, such as reading aloud and reading silently.

(*d*) The characteristic attitude towards the *Aufgabe* in learning formed the basis of an experiment in serial reactions.

The administration of the Roback interpretation tests (interpretation, application and analysis) to the elementary psychology class at Harvard, gave interesting information about the ability of the individual students. The tests showed a correlation of 46·7 with the composite academic grade, and incidentally indicated that some students are incapable of comprehending or interpreting properly what they read, unless the passage is of the most prosaic kind.

Other Items of Interest.

The next meeting of the American Psychological Association is to be held in Boston during the last week of December.

A series of mental tests will be given to entering classes at Princeton University.

The Yale Psychological Laboratory is being moved into more commodious quarters.

A. A. ROBACK.

ITALY.

The following is the result of an inquiry conducted on behalf of *Psyche* as to the work now being done in the Laboratories of Experimental Psychology at the Italian Universities. Our thanks are due to all the Directors of Laboratories who have so kindly supplied us with information.

The researches carried out in the course of the year 1921-1922 at the Psychological Laboratory of the Institute of Florence, under the direction of Professors F. De-Sarlo and E. Bonaventura, have been concerned with the following:—

1. Problems relative to the visual perception of space (in particular, the importance of the binocular parallad in the perception of depth), and the thresholds of the visual perception of movement.

2. The time characters of the act of apprehension (a long series of researches still in progress).

3. Analysis of some relations between will and its motor manifestations (in particular, the inhibition of reactive movements on the sensorial stimuli).

A course of Psychology was delivered at the Pedagogical School by Prof. E. Bonaventura, on "The Experimental Study of Infantile Intelligence, with particular regard to the first school period (ages from 6 to 13)."

At the Psychological Laboratory of the University of Rome, under the direction of Professor S. De-Sanctis, the following scientific work has been carried out: Pisani—"Experimental criticisms of methods of ascertaining mental deficiency" (not yet published. S. De-Sanctis—"Religious conversion: a bio-psychological study" (a volume not yet published). Volume IV. of "The Psychological Contributions of the Psychological Laboratory of Rome" will be issued shortly. De-Sanctis has largely been dealing with psycho-technique, and has also delivered a course of judicial psychology at the Juridical Faculty.

Work done this year at the Psychological Institute of Turin University, directed by Professor F. Kiesow, will be published in Volume II. of the *Archivio Italiano di Psicologia*, the first number of which contains the following papers: M. Ponzo—"The Signs of Inhibition Processes in Acts of Will."

A. Gatti—"On the Differential Sensibility in the Successive Excitement of Tactile Organs" (Weber's law). L. Bottis—"Retrospective Psychological Observations on a Danger Escaped." A. Gath—"A Twofold Æsthesiometer (with hairs) for the Simultaneous Excitement of Isolated Tactile Points." E. Castelli—"The Value of Experimental Psychology and Idealistic Criticism."

The Psychological Laboratory of the University of Padua, directed by Professor V. Benussi, will shortly publish a volume of experimental research on suggestion and hypnotism.

At the Psychological Laboratory of the University of Bologna the following work is in progress, under the direction of Professor G. C. Ferrari:—Miss A. Bosella is carrying out an experimental study "On the Physiological Foundations of the Notions of Time and Space." Miss A. Ricco is studying "Experimental Apraxis." Two other students are making researches with the object of determining and limiting the degrees and forms of intuition in perception—one (B. Brunello) by analysing the rapidity and adequacy of reading, the other (Miss S. Borghese) is making the same study with elementary and complex drawings. Miss G. Francia has begun an investigation of the modes and measure of voluntary determination in juvenile delinquents. Professor G. C. Ferrari himself is studying tests for vocational guidance, in which the individual psychology of the subject is too often quite forgotten. He is also working on the subconscious, and is organizing in Milan, for the beginning of October, the Third International Conference of Psycho-technique.

At the Psychological Laboratory of Genoa University, directed by Professor E. Morselli, L. Cabitto is working on sleep, and will shortly publish a paper in which he will propound his hypothesis about its causes. Professor Morselli himself is investigating psychic phenomena, and is studying mediums endowed with "clairvoyance"; but he has not obtained any result worth recording, it being necessary to proceed in these researches with great caution.

At the Physiological Institute of the University of Modena, directed by Professor M. L. Patrizi, besides experimental work many questions of normal and pathological psychology are treated. Professor Patrizi has studied "Lying" and "The Monogenesis and Universality of Crime." At the Assembly of the Royal Academy of Sciences, Letters, and Arts of Modena, held on July 9, 1922, Patrizi presented two memoirs containing the results of some experiments at his laboratory. In the first he deals with "The Phenomenon of 'Stairs' in the Curve of Cerebral Fatigue." In a previous study of the psychometry of

attention and that of mnemonic and associative capacity he found that at the basis of the diagrams, obtained by his well-known method, the psychical times, instead of lengthening, were becoming shorter, so as to produce a figure named by him "cerebral stairs." He chose this name in order to relate the result to that which also occurs in the curves of muscular work, familiar to physiologists as "Bowditch's stairs." This *spontaneous* phenomenon can be verified in almost all subjects in the initial phases of every experiment; from this must be distinguished the induced phenomenon which happens when the subject is suddenly relieved in his task. In the same manner spurts are reflected in the ergographic curves. The analogy of the two phenomena, muscular and nervous, gives Patrizi an opportunity of explaining his view of their origin and of comparing manual with intellectual activity. He concludes with the observation that these results may be profitably applied in pedagogical psychology and in the new psycho-physiology of vocational work. The second memoir is entitled: "The Motor and Respiratory Component of 'associative disease.'" The author supposes that the motor and respiratory components can be considered as factors of that vague state of body and spirit known under the name of "associative disease." He finds in his results a confirmation of the constant presence of the motor element (Münsterberg and Smith) in the purely mental exercise of associations. The instrument used in these researches (the *cheilogenograph*, for the reaction with movements of chin and lips in the words) was constructed by his assistant, Dr. E. Cavani.

A Criminal Painter (*Caravaggio*).—A psychological reconstruction and the new criticism of art. By M. L. Patrizi. (I. vol. of 287 pages, with an atlas of 50 prints, edited by Rinaldo Simboli Recanati, 1921.) This interesting work by the well-known physiologist and psychologist, M. L. Patrizi, a disciple of Mosso and Lombroso, is an example of the anthropological method, though it by no means follows the tendency of Lombroso to force every exceptional individual into one of the three categories: genius, madness, or delinquency. "More than in the strangeness of physical or psychical conformation," says M. Patrizi, "ought we to be interested in the intimate structure of the creative brain; but it is not necessary for every mentality, every intellectual producer, to be anomalous." The author also opposes the one-sided and antiquated idea of those psychiatrists and anatomists who were occupied with the "cerebral localisation" of genius. But most of all he is against the historians of

art who, in examining artistic works, consider only the influence of schools and environment and completely neglect the personal factor. On the contrary, his fundamental principle is that in the study of artistic creation, chief attention should be directed to the detailed examination of the mode of *perceiving*, *feeling*, *thinking*, and *willing* of the artist. He starts from the conception that Psychology is to be considered as a branch of Physiology, and devotes special care to the examination of single senses in chapters on "The hearing of painters," "The minor sensibility (tactile and muscular) in artistic emotion and elaboration," "The lower sensations (taste and smell) in the artistic creation"—though it must be remembered that such considerations only bear indirectly æsthetic valuation.

In *A Veridical Prophetic Dream* the author, G. C. Ferrari, describes a prophetic dream of Don Gaetano Dall'Olio, Professor at the Bologna Seminary, which happened in the end of August, 1921. In this drama Prof. Dall'Olio had a vision of his old preceptor, who had been dead for nine years, and who prophesied to him with extraordinary precision the death of Pope Benedict XV., and the advent to the Papacy of Cardinal Ratti. This dream was confirmed by many witnesses, and cannot in any way be put in doubt. The author sees in it a new confirmation of many doctrines of C. Richet ("Traité de Metapsychique"), and concludes that it is a case of cryptaethesis, but considers that an explanatory hypothesis is premature.

R. HELLER-HEINZELMANN.

SURVEY OF CURRENT LITERATURE

Pathology of the Nervous System. By E. FARQUHAR BUZZARD, M.A., M.D., F.R.C.P., and J. GODWIN GREENFIELD, B.Sc., M.D., M.R.C.P. (Constable, pp. xv + 334, price 30/-.)

The object of this book is to provide a description of the anatomical changes associated with disorders of nervous function, to give some account of the causation of nervous diseases, and to indicate, where possible, the relations between structural changes and clinical signs and symptoms. This object is achieved in a highly satisfactory manner, and the work should prove invaluable to medical students and to practitioners of medicine who are engaged in the treatment of nervous diseases.

A useful introductory chapter on General Pathology prepares the reader for the detailed examination of the various morbid states and processes to which the nervous system is liable. A chapter is devoted to Developmental and Familial Diseases, and another to Injuries to the Nervous System. The rest of the book deals with the morbid anatomy of the brain and spinal cord in circulatory disturbances of these organs; the structural changes brought about by infective agencies, poisons, and tumours; and, finally, a section is devoted to diseases of obscure origin, such as disseminated sclerosis and paralysis agitans. Two useful appendices are added in which staining methods and methods of examination of the cerebro-spinal fluid are described.

Psychologists will not find much in this book that is of direct or positive interest to them; but, negatively, such a work as this is suggestive and enlightening. Anyone who has supposed that our knowledge of the structure and function of the nervous system has been to any useful extent correlated with our knowledge of the structure and process of the mind will realize, on reading this book, how little has been done in this field up to the present time. For, although we have here a description of almost every known morbid state of the nervous system, and although, where it is possible, the relations between structural alterations and clinical signs and symptoms are indicated, nevertheless, there is hardly a reference to any definite mental symptoms connected with the morbid structures described, and hardly any description of morbid structures known to accompany definite disorders of the mind.

The meagre account that can be given of the relations of the anatomical to the clinical phenomena in General Paralysis of the Insane (p. 158) forcibly reminds us of our ignorance of the intimate correlations of mind and brain. As Kraepelin has said: "*Post mortem* investigations in a case of insanity have hitherto yielded at most a disclosure of the occurrence of this or that morbid process in the brain, with perhaps some general idea of its greater or less extent; but as to what members of the brain structure are implicated, and what effect their implication must have upon the mental life, we still know practically nothing." T. W. M.

The Psychology of Thought and Feeling. By CHARLES PLATT, Ph.D., M.D. (Kegan Paul, 7/6.)

The author describes his book as a conservative interpretation of the results of modern psychology, but apart from his political views, which usually appear with an apology and might better be described as "academic," there is nothing unduly conservative about his treatment. Starting with the inherited dispositions, he proceeds to the compound emotions, and so to habit and memory, which prepare the way for the discussion of knowledge and thought. Educational applications follow, and then we pass on to the Subconscious mind. The book concludes with special sections on mental ills, the crowd, and the delinquent.

By skilfully avoiding difficulties such as the "self," valuation, and (except incidentally) language, the author has succeeded in speaking with assurance over a wide field without laying himself open to the usual criticisms. He tends to reject spirits, but as regards telepathy he says (p. 193):

> "Whether we are, or are not, here in the presence of an unknown force, I do not know. The evidence is extremely difficult to value, and the judicial attitude very difficult to maintain. Those who 'account for' psychical phenomena simply by denying their existence, do so with vehemence—with a vehemence derived from their dislike of the supernatural—but this vehemence is, in itself, also evidence of their own unscientific prejudice. Why bring in the supernatural at all? Is it not possible that we may be here in face with a natural law as yet undiscovered, a natural force as yet only partially recognised? It would certainly be unscientific and presumptuous to deny the possibility that such a force may exist. To deny its possibility would be to seat ourselves with Galileo's judges. We know many things in nature very imperfectly, and of causes we know practically nothing. It may thus easily be, as Flammarion long ago has claimed, that there is existing a 'psychic force' known to us, so far, only by its occasional results—an unknown force emanating from the human being, and capable of making itself felt at a distance. This possibility we will concede, but let us be on our guard—the possibility of an unknown force is in no way evidence that such a force exists. Such a conclusion would be as illogical as is that of Sir Oliver Lodge, who argues that because science presents marvels to the uninitiated layman, therefore spiritualism ought to be believed in."

This is a fair specimen of Dr. Platt's method of presenting the various issues which his exposition raises, and though he makes it clear that in his opinion the standpoint of scientific monism (whatever that may be when more closely examined) is the right one, he wisely refrains from troubling the reader with unnecessary fundamentals. From the literary point of view the treatment is clear and attractive, though the impression that Browning is the only poet with whom the author is familiar should have been avoided.

Introductory Lectures on Psycho-Analysis. By Prof. S. FREUD. (Allen and Unwin, 18/-.)

Delusion and Dream. By Prof. S. FREUD. (Allen and Unwin, 12/6.)

These welcome English additions to the Freudian Canon are introduced by Dr. Ernest Jones and Dr. Stanley Hall respectively. The former has given it as his opinion (I.J. *Psycho-Analysis*, III. 2, p. 223) that of the book which he does not introduce that the translation is "mediocre," and he points out that Hamlet appears (*via* Schlegel) thus: "They usually know many things between heaven and earth that our academic wisdom does not even dream of." Which suggests that it would be an interesting psychological study to pass on texts from one linguist to another and compare the form and content of the final version with the originals.

Delusion and Dream also contains Jensen's *Gradiva*. The book was published over fifteen years ago, and is one of the least satisfactory of Freud's contributions. The lectures, on the other hand, are of first-rate importance, and will be invaluable to English students of the historical development of the psycho-analytic movement. That Freud himself is inclined to attribute undue importance to his terminology is best shewn by a remark about Janet (p. 218), who seemed at one time to regard unconscious ideas as "possessing the patient's mind. Since then, however, Janet has taken up an attitude of undue reserve, as if he meant to imply that the Unconscious had been nothing more to him than a manner of speaking, and that he had nothing 'real' in mind. Since then I have not understood Janet's views." This is in other respects an interesting confession; for, if the psycho-analytic technique has any value apart from the limited field in which its application first attracted attention, it should surely be equally applicable to the symbols used by so-called normal individuals, and more especially to the familiar symbols of erring colleagues.

Leonardo da Vinci. A Psycho-Sexual Study of an Infantile Reminiscence. By SIGMUND FREUD. Translated by A. A. Brill. (Kegan Paul, 12/6.)

Freud's celebrated psycho-analytic romance, his ingenious attempt to reconstruct the life of Leonardo, and on the basis of a jotting in his note-books about a vulture, and another about some funeral expenses, to "subordinate Leonardo's fate to his illegitimate birth and to the sterility of his first step-mother," has long been out of print in English. The present edition (for the exclusive use of physicians and medical students) is a reprint "by the newly-invented Manual process" of the lamentable American translation to which the laws of copyright condemn us; and the sole recommendation of the book in its present form is the fact that the price is half that of the American original.

It is a sad reflection on the state of our Kultur that we should thus be condemned to a carefully restricted edition of a work which can be obtained everywhere and by anyone in the original for five shillings or its equivalent; and that this should be produced by a process which on the present occasion—though capable of excellent results—takes us back to the experimental curiosities of the fifteenth century. Moreover, apart from the horrors of the American version [of Leonardo's mother "only the writer Merejkowski believed to have found some traces" (p. 33). According to the "church fathers," vultures "know to procreate without the co-operation of a

male" (p. 47). Clearly there are translators who believe to know to translate without the co-operation of the English of the King], Freud issued an enlarged version of this monograph with additional illustrations some time ago, and it is particularly his additions which are likely to be the subject of controversy.

On the other hand, we must be thankful for what we are given, and the ingenuity with which Freud achieves his "analysis" of one of the great figures of history renders the volume well worthy of study, even in its present form. Leonardo's homosexual tendencies have long been a matter of biographical comment, and they are here explained as due to a fixation on his mother, while his interest in scientific investigations is equally an "infantile regression" and "a sublimation of the erotic impulses." The evidence is insufficient to enable the twentieth century to pass a final judgment on such hypotheses, and Freud himself is not unaware of the slender foundations of this particular example of his method of approach.

The Mechanism of the Brain, and the Function of the Frontal Lobes. By Professor LEONARDO BIANCHI. Translated by J. H. Macdonald. With a Foreword by C. Lloyd Morgan, F.R.S. (Livingstone, 21/-.)

The problem of the localisation of mental activity in the brain has given rise to controversy wherever the Mind-Body problem has been considered. For over forty years Professor Bianchi, of Naples, has been occupied with the experimental aspects of the question, and so long ago as 1894 a committee of scientists was appointed to examine and report on the monkeys he had deprived of part of their brains. The present volume gives us details of these experiments and of more recent ones, for "new methods only served to deepen my conviction of a physiological reality that withstood all the weightiest and best-directed attacks." To-day the work of Shepherd and Bechterew may be cited to support the special results claimed, and the whole behaviourist movement has tended to prepare the ground for a revival of the naturalistic method.

It is particularly interesting to psychologists to find Professor Lloyd Morgan amongst Bianchi's supporters. What, he asks, does the experimenter feel justified in inferring from the behaviour of monkeys from whose brains the frontal cortex has been ablated? That they are reduced to the level of unconscious automata—at any rate, in one sense of the word "unconscious." In what sense? Profeessor Bianchi, in his concluding chapter, discusses the concept of consciousness; and he favours the hypothesis that two stages may be distinguished, a lower and a higher. The reactions which we can observe in animals "warrant us," he says, "in speaking of the dawn of a higher consciousness; and, if we trace the various stages in the evolution of the brain, we find that they first show themselves coincidently with the first appearance of the frontal lobes." If this be so, we may say that consciousness of the higher order—*i.e.*, that kind of consciousness which we human folk enjoy—involves the integrity of the frontal lobes. Hence, concludes Lloyd Morgan, one seems justified in speaking of the mutilated monkey as in this sense an unconscious automaton. And we may agree with him in hoping, on humanitarian grounds, that this is so; for, if it be so, then with the destruction of the frontal cortex, consciousness, as the analogue of what we commonly mean by the word, ceases, though the behaviour of an automaton is still open to observation.

Professor Bianchi himself is by no means content to record his experiments and leave to others the task of conveying his message to the general public. His book ranges over a variety of problems, often superficially enough, but always, in the true Italian tradition, in a vigorous and stimulating manner. Are living beings naturally social? "In every case of mutilation of the frontal lobes in monkeys, what was found to be suppressed was, without exception, that sentimentality or feeling for others that we designate as *sociality*. A similar condition exists in human beings who have suffered severe injury to both frontal lobes, and in those whose frontal brains are imperfectly developed. The majority of the insane exhibit the same feature. Sociality is thus a psychic manifestation which comes with evolution. It varies in different individuals and races, and becomes suppressed by mental disease and severe frontal lesions." Or, again, social life demands (p. 333) that we promote the development of the brain, whose frontal lobes contain the key to advancement, personal and national. But what do our schools do? "Consider a moment the attitude of Italy in the earlier stages of the Great War. The ignorance and consequent suggestibility of the masses, the flabby consciences of certain leaders, the lack of foresight (inattention and superficiality of judgment), the predominance of low emotions (vanity and pride in some cases, and fear, indifference and neglect of duty in others), injustice (falsehood, cruelty, moral weakness), etc., were able for the moment to place a veto upon the great and genuine virtues of the stock, subsequently revealed in the heroism of her soldiers, who smilingly sacrificed their lives for their country, and in the noble, dignified, patient resistance of a people enduring endless suffering, yet throbbing with the highest and purest patriotic sentiment, virtues which, regaining their proper dominion, made victory assured."

On the whole, this is one of those works which, like the challenge of Lombroso or Ferrero in other fields, stimulate less synthetic thinkers to further inquiry. Whether more experiments such as those conducted by Professor Bianchi will lead to further knowledge may be doubted, and it is to be hoped that light may come rather from a development in our methods of observing the behaviour of unmutilated bodies. Certainly a more widespread agreement might be reached on the general positions which he is most anxious to maintain, if less mystical modes of thinking were prevalent amongst psychologists.

Psychology and Mystical Experience. By Professor JOHN HOWLEY.
Supernatural Mysticism. By BENEDICT WILLIAMSON.
(Kegan Paul, 10/6 each.)

Both these books bear the *Imprimatur* of the Roman Catholic Church, and those who are not members of that body may learn from them not only a great deal about the psychology of religious experience, but also something of the attitude of English Catholics towards the findings of a new and somewhat disturbing study. Father Williamson's book has an Introduction by Cardinal Bourne, and discusses, from the standpoint of a devout believer, the methods of leading a life "in closer and more intimate union with the Divine Master." Professor Howley, in the course of his exposition, examines the views of such writers as James, and even Murisier, whom he quotes on p. 266. The agnostics, he says, contend that

the mystic bases himself on the maxim "where there is nothing, there is God," and by directing their affective energy to that nothing get an affective sense of God which, if pushed to the psychic breaking-point, results in unconsciousness; so we have ecstasy. But in his own view, though such an account may explain Buddhist and Neo-platonic ecstasy, it is inadequate for the positive experiences of St. Teresa, Blessed Angela of Foligno, St. Catherine of Siena, and other Christian mystics. And there, at any rate for the present, the dispute is likely to rest.

Theory of Mind as Pure Act. By GIOVANNI GENTILE. (Macmillan, 1922.)

For many years it has been difficult to persuade psychologists that the "metaphysical" approach to their subject still found advocates who were taken seriously by followers outside the limited academic circle economically dependent on professorial smiles. Recently the name of Gentile has been frequently coupled with that of Benedetto Croce as that of a profound and no less voluminous exponent of the new Italian idealist school. The translation of Croce, followed by that of Varisco, dealt a severe blow to the reputation of two of the foremost representatives of that school, though Croce's achievements as a literary historian still ensure him a well-merited respect. Gentile, still hidden from the uncurious monoglot, still remained a name to conjure with; but now he, too, stands before us as a rhetorician, or, in the vocabulary of his compatriot Rignano, a "dialectician" *des carapaces verbales*.

Here is a sentence from a section (p. 30) dealing with "The Infinity of Consciousness and Thought":—

> "As we move with thought along all that is thinkable, we never come to our thought's margin, we never come up against something other than thought, the presence of which brings thought to a stop. *So that* the mind is not only in itself psychologically one, it is one epistemologically and it is one metaphysically; it is never able even to refer to an object which is external to it, never able *therefore* to be conceived as itself a real among reals, as a part only of the reality."

The italics are ours, and indicate one aspect of Gentile's method of "proof." Another is to be found in all its simplicity in the discussion of Causality. "Being," we are told, is not deducible from "possible." This proposition "is self-evident—but why? *Because* being is being, and the possible is possible, shorn of the realisation of itself which is purely the exclusion of its contrary." Again the italics are ours, and suggest that the most interesting psychological data in a volume which purports to deal with the fundamentals of the science would be provided by a study of the mental processes involved in metaphysical "proof," as indicated by the author's use of the causal conjunctions.

The New Idealism. By MAY SINCLAIR. (Macmillan, 1922, 14/- net.)

Many philosophers must have wished that they could write novels as easily as Miss Sinclair has proved of late that she can write about philosophy. Certainly there are some who might well take a lesson from her in the technique of exposition, though it is to be feared that the actual matter of the volume before us, owing to its

lack of a psychological basis, falls short of what might have been hoped for from one not trammelled by academic traditions. Miss Sinclair's reconstructed "Idealism" would "draw the line between the processes and states of consciousness and the processes and states of things. Between things before and after they 'come into' consciousness. There is an order of cosmic happening which is not the order of our experience." The older Idealism, she admits, "drew no line between consciousness and the object of consciousness, between knowing and the thing known." Why the ordinary common-sense view should now be called "Idealism" would not be obvious, did not Miss Sinclair also assure us that "we are driven to assume an ultimate consciousness to sustain the universe in the absence of any other; to hold Time and Space together and resolve their contradictions." Such an assumption certainly allows Miss Sinclair to press all the big words into her service; but the general reader will find that her book provides a useful introduction to many of the curious utterances which philosophers have recently been making on the subject of Space, Time, and Deity.

Negro Folk Rhymes. By THOMAS W. TALLEY. (The Macmillan Co., 1922, $2.25.)

The Jubilee Singers visited England long enough ago for most of the present generation to have heard of them only by repute. But from the Southern Syncopated Orchestra, singing under the direction of Mr. Cook, many were able to get some idea of the quality of Afro-American music, and from time to time Mr. Roland Hayes treats his audiences to purely African rhythms. Mr. Talley, of Fisk University, here collects a number of songs and ballads which are for the most part quite unfamiliar in Europe, and has added an Appendix of a hundred pages containing much that is of psychological interest. So little is known about Rhythm that material of this sort, from what is probably the most rhythmic race in the world, cannot be neglected.

Many of the songs here given were accompanied by patting the foot on the ground, as a substitute for the ancestral drum, but it is to be hoped that the result of enthusiasm for things African will not encourage that form of appreciation in which the modern concert-goer is only too apt to indulge—beating time with hands and fans to modern music not designed for that purpose. Some of the phraseology is not readily explicable—"The College Ox," for example (p. 112):

"Ole Ox! Ole Ox! How'd you come up here?

. . . . . .

Now! Now, you come up here fer some sort o' College use."

Were it an Oxford don ruminating on some sporting hero, dealt with lightly in Responsions "to keep up the morale of the place," it could be understood. And again, "Why Look at Me?" (p.113):

"What's you lookin' at me fer?
I didn' come here to stay;
I wants dis bug put in yo' years,
An' den I'se gwine away."

Those who endeavour to account for attitudes and desires need never lack material amongst these rhythmic humorists:

"I'll eat when I'se hongry
An' I'll drink when I'se dry;
An' if de whitefolks don't kill me,
I'll live till I die."

Dr. John Dee, Elizabethan Mystic and Astrologer. By G. M. HART.

Raymund Lully, Illuminated Doctor. By A. E. WAITE.

St. Francis of Assisi, The "Troubadour of God." By EDITH K. HARPER.

(Rider, 1922, 2/- each.)

The latest additions to this interesting series of "Mystics and Occultists" serve once more to remind us both of the illusions under which mankind has laboured and of the difficulties which have beset every sort of inquiry until comparatively recent years. Here is Lully in the early fourteenth century claiming that his art enables him "to provide an answer to all questions, on the assumption that a given name or word represents a known thing," and "to establish all possible aspects of debate under certain comprehensive headings, as, *e.g.*, whether the given thing is that which it is, what and why it is, where it is and when, how and whose it is," etc.; while Dr. Dee in 1603 "believed his life in actual danger from the new Act against witchcraft, and the horrible zeal with which James and his advisers administered it." We have yet much to learn about the thought of our ancestors whose lives were dominated by beliefs and fears of this nature. The details of the life of St. Francis are more familiar; but in these days of Franciscan revival it is well to have them put once more before us.

PERIODICALS.

Rivista di Filosofia (1922, No. 4). G. Montesano on "The Psychology of Laughter." In the first part of this paper Montesano offers a concise criticism of the many theories of laughter, many of which were also discussed by Professor McDougall in the last number of *Psyche*; and he arrives at the conclusion that none of them succeeds in clearing up the fundamental points to be explained by the investigation of this phenomenon: (1) what characters must an object have for evoking laughter; (2) from what interrupted activity does it rise; (3) what organic disturbances does the interruption produce; (4) what is the part played by pleasure and pain in the laughter-manifestation and in the preceding activity; (5) what are the tendencies which, satisfied or not, generate this pleasure and this pain? In the second part he expounds his own theory of laughter and considers a "typical joke," in which the various factors of laughter are in greatest evidence. It is known that the muscles, when near exhaustion, answer to continuous stimuli with an intermittent contraction, and thus the exspiratory intermittence, characteristic of laughter, is explained in this special case as the effect of a sudden change of rhythm in the activity of certain of the respiratory muscles, and of an exaggerated excitation—due to the cessation of a fiction and the sudden emergence of joy. Montesano tries to show how all laughter derives from a real or imaginary joke.

Rivista di Psicologia (1922, No. 1). F. De-Sarlo, "Imagination as an autonomous mental activity." In this paper the author expounds his important new view of the imagination, which may open the way to the solution of many problems which could not be resolved in any other way. Even a superficial observation shows

that everyone of us, besides the explicating, the knowing and practical activities, has the capacity and inclination to contemplate complexes of images, which by themselves excite our interest. Just as every normal individual feels strongly the need of knowing and acting, so he seeks also those complexes of images, which satisfy what we may call the "imaginative instinct." This search for complexes of representations is a primary fact, whilst the enjoyment is only a consecutive and secondary one, and is an index of the satisfaction of a fundamental tendency. Imagination may and should be considered as an automonous function, but it cannot be considered as a primary one: it always supposes a corresponding form of experience. All that once was experienced forms the food of the imaginative activity; every psychical fact, however complex it be, can be mentally represented, and this mental representation is always different from the corresponding actual psychical fact. Since the imaginative activity can refer to various classes of mental processes, it must assume different forms corresponding to the degree of complexity of these processes, and therefore be regulated by laws, which necessarily transcend the pure laws of association. The scope of a psychology of imagination must be to insist on the peculiarity of the laws of the imaginative activity. The most characteristic forms of imaginative activity are play and the aesthetic life. Play is a psycho-physiological activity which has a purely representative value. The differences of aesthetic value of imaginative products can only be related to differences of modality in the imaginative activity. Aesthetic objects can assume the character of life and reality, and have the greatest value when the fantasy in creating them is conformable to those laws which most perfectly express its nature (the norms of beauty).

The British Journal of Psychology. April, 1922. In the *General Section* Dr. Hartridge completes his vindication of the Helmholtz resonance theory of audition by a careful analysis of the physical competence of the fibres of the bacilar membrane to give the observed effects. There is also, *inter alia,* an interesting paper by Dr. Alan Gardiner on "The Definition of the Word or the Sentence," in which the author finds in the volitional attitude of the speaker the essential distinction of the latter. It is satisfactory to note such indications of co-operation between philology and psychology, though the suggestion here made is by no means original. The most noteworthy contribution in the *Medical Section* is a very valuable and interesting study by Dr. Morton Prince, describing "An Experimental Study of the Mechanism of Hallucination." These experiments were made on a subject who performed automatic writing without awareness of its contents, and simultaneously experienced hallucinatory visual images. Verbal descriptions of the latter were obtained and compared with the contemporary script. A perfect correspondence was observed, and a similar connection was discovered when the experiment was reversed—*i.e.*, when hallucinations were experimentally induced by crystal-gazing as the primary phenomenon and the script used to describe the concomitant subconscious "thoughts." This investigation leads Dr. Prince to a number of conclusions which should be studied by all who are interested in the problems of dissociation and automatism.

In the *Journal of Comparative Psychology*, Vol. I, No. 6, we may call attention to the paper by Mr. Frederick Hammett on "Temperament and Bodily Constitution," in which he maintains that the relation between these two variables is reversible. His experiment showing that albino rats in whom fear or pugnacity has been removed by taming are less susceptible than others to extirpation of the parathyroid, is particularly elegant and should be followed up. K. S. Lashley describes in the same number a long series of experiments on "Cerebral Function in Learning." "Animals were trained in a habit of visual discrimination, and were then given additional practice for twelve hundred trials. Destruction of the visual areas after this training resulted in loss of the habit. Retention of other habits showed that the loss was due to destruction of visual conditioned-reflex arcs, and not to operative shock." In Vol. II, No. 1, Mr. Zing Yang Kuo describes experiments on rats, showing that unsuccessful acts leading to actual pain or confinement ("ill-adaptive" acts) are eliminated more quickly in the process of habit-formation than those which merely delay or prolong the process of attaining satisfaction ("excessive" acts).

The Journal of Abnormal Psychology, December, 1921—March, 1922, contains a number of important contributions. Dr. McDougall on "the Use and Abuse of Instinct in Social Psychology" is followed by a paper on "Instinct," by W. R. Wells; "War Neurosis" (Taylor), "Expression of Emotions" (Craig), "Objectivity in Human Phenomena" (Ginzburg), "The Problem of the Individual" (Cory), "Psychometric Tests in Epilepsy" (Richmond) are other interesting papers.

The Journal of Neurology and Psychopathology, August, 1922, in addition to clinical material, discusses "The Nomenclature of Minor Mental Disorders" (Culpin), "The Physiology of Stepping" (Graham Brown), and "The Phobia" (T. H. Thomas). Particularly noteworthy is a survey of recent work on "The Cerebro-spinal Fluid," by R. M. Stewart, in which he concludes that the relations of the Fluid to the Brain are still problematic; it circulates in the ventricles of the brain, but whether also in the substance is doubtful.

The Psychoanalytic Review, April, 1922, is devoted to a study of "Types," on the lines of Dr. Jung's recent volume, which will appear in English next month, by Beatrice Hinkle. There is also an "analysis" of Knut Hamsun's *Hunger*. "Enuresis," by Dr. S. Herbert, and an account of "A Modern Œdipus," by Dudley Ward Fay, are the chief features of the July issue, in which there is also a discussion by J. F. W. Meagher of the critics of Psychoanalysis.

The two latest additions to the "Nervous and Mental Diseases Monographs," issued by the same publishers are No. 33, *A Psychoanalytic Study of Psychoses and Endocrinoses*, by Dudley Ward Fay; and No. 34, *Psychoanalysis and the Drama*, by Smith Ely Jelliffe and Louise Brink. (Price 15/- each). Chapter IX of the latter is occupied with Barrie's "Dear Brutus," now to be seen in London. "In 'Dear Brutus' the genius of James M. Barrie has spoken very directly and clearly of the service which the dream may render for the understanding, not only of one's inner life, but for its readjustment and rehabilitation" (p. 131).

The International Journal of Psycho-analysis, June, 1922. J. Westerman-Holstijn deals with a case of "Cramp of the Spinal Accessory," A. S. Strachey with a "Dream of Doubt and Conflict," Dr. Ferenczi with the "Symbolism of the Bridge," and Dr. Pfister with "Plato as a Fore-runner of Psycho-Analysis." There is a communication by S. Pfeifer on a case of "Disappointment in Love during Analysis"; and G. Roheim both replies to Mr. F. C. Bartlett's criticisms (in *Folk-lore*) of attempts to apply Freudian methods to the Folk-tale, and contributes a thirty-page survey of recent contributions to Ethnology and Folk-Psychology.

In *Mind*, July, 1922, Professor Edgeworth takes the opportunity offered by Mr. Keynes' book to consider the question of "Probability," which he first attacked in the same journal so long ago as 1884; H. N. Randle discusses "Size-distance Perception," Professor Strong examines Mr. Russell's epistemology, and Joshua C. Gregory considers the various types of visualisation in relation to verbal imagery and dreams.

Psychische Studien. February, 1922. In the February number of *Psychische Studien* Grunewald contributes an article on what he calls ferro-magnetic phenomena occurring amongst men. Those who have read his admirable "Physikalisch-mediumistische Untersuchungen" will doubtless look over this article with interest, as it was read by the author at the Congress at Copenhagen last year. Wilhelm Tordai contributes a survey of the poltergeist phenomena at Kecskemét, in Hungary, where fires constantly broke out for no apparent cause, and which are interesting in view of the almost precisely similar phenomena reported in Nova Scotia. Schwab continues his series of papers on "Hallucinations, Pseudo-hallucinations, and Clairvoyance"; whilst Dr. Lebrecht translates the account of the alleged clairvoyance of Stephan Ossowiecki at Warsaw, which was reported in the *Revue Métapsychique* for November-December, 1921.

The Journal of Mental Science (January, 1922) contains original papers on: "Diastase Content of Urine in Mental Disorder" (Goodall and Scholberg); "Bacterial Infection in Dementia Praecox" (Robertson); "The Oxford Clinic" (Good); "Psychology and Psychotherapy" (Brown); "Fantasies of Childhood and Adolescence" (Mapother and Martin); "The Goldsol Test in Mental Disease" (Bedford); "The Colloidal Gold Reaction" (Whitelaw).

The July, 1922, number contains Sir Maurice Craig's Third Maudsley Lecture, on some aspects of education and training in relation to mental disorder; and papers by T. S. Good on "The Use of Analysis in Diagnosis," by H. R. C. Rutherford on "The Nature of the Psychopathic Inheritance," by I. D. Suttle on "The Herd-Instinct Theory," and by M. Hamblin Smith on the "Medical Examination of Delinquents."

Scientia. January, 1922. Psychologists will be interested in M. Savorgnan's critical note on "The Effects of the War on Sex Proportions in Births." The author attributes the greater proportion of male births during war to "the decrease of abortions in

general, and, in particular, of premature *accouchements* for male infants, a decrease due to the good effect on the mother's organism of a longer interval between successive *accouchements*." February—Henri Piéron on "Mechanism and Vitalism"; A. Meillet on "L'Unité Romane." March—E. Rignano on "Le Fonctionnement de L'Intelligence." The author, who, in his *Psychology of Reasoning* (shortly to be added to the International Library of Psychology), reduced all psychical processes to combinations of affective tendencies, discusses the Emotions, Will, and Attention in the light of this view, and also deals with Reasoning in general, and with Abstract and Mathematical Reasoning in particular.

Psyche and Eros is a new periodical which is both entertaining and independent. It is, we think, somewhat unnecessarily anti-Freudian, but its Editors are men of repute, and provide a good selection of original articles. Journals such as this do much to promote the healthy rivalry of opposing schools, which is as essential to the progress of Psychology as to any other science.

The Journal of the Society for Psychical Research (May, 1922) contains what appears to be a "cast-iron" exposure of deliberate fraud by Hope, the celebrated "spirit" photographer of Crewe. This, coming on top of the report of the Occult Committee of the Magic Circle, must be a sad blow for the Spiritualists who have so long and so violently abused those who were sceptical in the matter. But their invincible credulity will doubtless survive even this exposure. After all, as one of their leading apologists has naïvely pointed out, spirit photographers have been shown up so often that a few exposures more or less can hardly be expected to make much difference.

Proceedings of the Society for Psychical Research. Part LXXXIV. This part of the *Proceedings* contains the Report of the Committee which investigated the mediumship of "Eva C." in the early summer of 1920. This case of apparent materialisation is one of the most important and most difficult of modern times, and the phenomena in general were discussed in detail in the review of Dr. Schrenck Notzing's *Phenomena of Materialisation* published in these pages in January, 1921. It is most unfortunate that in the long series of forty sittings observed by the Committee no phenomena took place of sufficient magnitude to enable them to form a definite conclusion as to their origin. A special chapter by Mr. E. J. Dingwall deals at length with "The Hypothesis of Fraud." His view, like that of the Committee as a whole, appears to be one of "Not Proven," with a certain balance of opinion in favour of the phenomena. It is fairly certain that the extremists on both sides will regard the report as grossly unsatisfactory, and we may therefore conclude that it fairly represents the actual position.

The Journal of the American Society for Psychical Research for January, 1922, contains a most interesting account by Dr. Walter F. Prince of some experiments in Psychometry which he recently witnessed in Mexico. Space does not admit of detailed comments on these experiments, which we hope to review more adequately

when they are published in full. They are, however, of quite exceptional interest and value, and may particularly be commended to the notice of professional psychologists.

Revue Métapsychique. No. 8. November-December, 1921. The most interesting item is a paper by M. Guy du Bourg de Bozas, describing various electrical phenomena which he claims to have established in the presence of certain mediums. He encloses, for example, two insulated electrodes in an hermetically-sealed lead box, and connects them by similarly enclosed wires to a battery and galvanometer. It is stated that if a suitable medium holds his hand over the box for a minute or two a connection is suddenly established between the electrodes, so that the galvanometer indicates the passing of a current. Long experience has taught one to be very chary of accepting even the most circumstantial descriptions of this kind, but the opportunities for error seem fewer than usual in this case, and it is clear that if such a phenomenon can be substantiated it will be of the very first importance. No. 9 (January-February, 1922) also contains several interesting and curious contributions.

The Beacon (Nos. 1—6) is a monthly review in which psychologists will find a number of interesting articles. We may instance Mr. Julian Huxley's paper on "M. Coué and Auto-suggestion"; another by M. Coué himself on "Education as it ought to be"; and Mr. Strauss' article on "Science and Auto-suggestion"; "Spiritual Regeneration," by Mr. Sidney Klein; two further papers on education by Messrs. MacMunn and Dance, and "The End of Toulouse-Lautrec," by Mr. Arthur Lynns.

In *The Quest* for January, 1922, the articles entitled "Milton and the Zohar," by Professor Saurat, and "A Babylonian Mystery Play and the Passion Story" are worth reading.

Psychic Science, Vol. I., No. 1, appears to be a production of the more rabid spiritualists devoid of scientific knowledge or critical ability. In view of the recent damning exposures of "spirit" photography by the Magic Circle Committee, Major Spencer's article is out of place.

Theosophy, August-Sept., 1922, a double number owing to the strike, and an enlarged October issue promised. Ernest G. Palmer on "The Antiquity of Culture," and J. Scott Battams on "Spiritualism and Regeneration."

The Eastern Buddhist (Kyoto, Japan), Nos. 5 and 6, May, 1922. "The Way to the Land of Bliss" (on "Amida's Way of Salvation"), by S. Yamabe, and "Some Aspects of Zen Buddhism," by D. T. Suzuki. H. Uyi discusses "The Development of Buddhism in India."